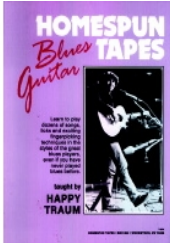




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Introduction



Books

Reading Music (a series under development)

- Part 1 - Know Where to Find the Basic Notes In C-Major
- Reading Basic Rhythm - Part 1
- Reading Basic Rhythm - Part 2
- Reading Intervals - part 1
- Reading Chords - part 1 * Part 2 * Part 3

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Introduction

Lesson 1 :
Introduction to Scales



Books

Nothing is as practical as a good theory

If you are not satisfied by knowing *how*, but also want to know *why*, you need to know and understand the basis of the music. This means that you have to know some music theory. If you understand the musical concepts, then you will be able to figure out chords, scales etc., without having to look them up in a book or on the web. Chords will no longer be just labeled fingering positions, but relations between notes.

Understanding basic theory will also make it easier to learn and to remember music. When you understand how music relates to a musical context and are variations over the same concepts, then you do not have to store songs in your memory as individual musical structures with unclear interrelations. (And you learn even more from writing than from just reading about the subject, which is one of my main motivations for writing all these lessons.)

If you want to break out of your playing habits, an understanding of the music will help you in finding possible ways out. It has been said that the even such a natural talent of music as *Jimi Hendrix* was musically very frustrated at the end of his life. He felt confined within his – after all rather limited – musical universe. He was a musical genius, but had very little musical knowledge. He felt that he needed to learn a lot more, for instance about music theory, to be able to further develop his talents. But he did not get the time to do that.

Music has not strict rules saying what you shall and what you shall not do. Music theory summarize and analyze common practice. It tells you which musical concepts that usually has been working until now, and it explains why, and it can give you some guidelines about what to do and what to avoid. Following all these guidelines will usually give results that are acceptable in the sense that the music does not sound wrong. But it might still be very boring. Good music don't stick to rules, and no great composer have been following the rules of their own time. Imagination, willingness to experiment and good taste is needed. But knowing the basics might help you not wasting time trying to reinvent the wheel or save you from being stuck in a dead end street.

Some challenges

It is a challenging task to write lessons on music theory for guitar players who mainly play blues, folk, rock, country and maybe jazz guitar. Most of the literature on music theory assume that you have a keyboard. This is logical. The layout of a keyboard is much better suited for illustrating musical concepts and relations. But I want to write for guitar players, and take into consideration the peculiarities, limitations and possibilities of the guitar. I have learned a lot from *John Duarte's* column in *Guitar Player* and other columns from the time when *Guitar Player* was running columns of this kind.

The next challenge is that what is written is mainly based on classical music, or maybe jazz. This is not without reason. If you are looking for precise examples, you cannot use rough and ready chord strumming. But classical music and popular music does not always speak the same language. The language and the analytical concepts of classical music does not always fit popular music. It is sometimes hard to find examples from popular music to illustrate the musical concepts, and the classical theory does not always give the tools to analyze popular music.

In recent years there has been written some books on theory based on popular music. But too often they only explain how, without the analysis to give a real understanding. One Internet series that has been of great value is *Alan W. Pollack's Notes on Beatles*. This is not a series on theory, but a series where every Beatles' song is analyzed. Here all Beatles' songs are analyzed by a trained musicologist. A lot can be learned from how he does it.

I will also mention the Dutch on-line magazine *Soundscapes on-line journal on media culture*, that has many interesting articles on popular music.

Why you should learn to read music (standard notation)

TAB is very good when you want to learn "how to" on a guitar. Standard notation is difficult, and most guitarists are inferior sight readers, if they read music at all. But TAB is a *technical, not a musical notation*. It describes playing technique, it does not describe the music. This means that it is hard to understand musical concepts from reading TABs, and it is hard to describe them with TABs only. It is as if you try to learn the grammar of a language without being able to read it. It is not impossible, but it is hard.

I am not saying that you have to be a good sight reader. It is enough if you are able to spell your way through the music, you do not have to read it fast and fluent. When I have the choice, I always prefer TAB when I am playing from printed music. And TAB is better when you will explain *how to play*. I have to work a lot more with standard notation to find fingerings, position etc, and can only sight read rather simple music. But when working with theory, I use standard notation.

If you want to learn music theory, it will be hard to find a book with TAB. They are mainly written with no specific instrument in mind, and the music is described in standard notation. Even some of the books that are written for guitar, use standard notation only. Standard notation is a universal musical "language", while TAB is an instrument specific "language". (This also mean that you will not be able to work with music written for other instruments, if you only read TAB.)

Having said all that, I will give all examples in both standard musical notation and TAB, so that you at least should be able to play the examples and listen to their sounds. And I will assume that the majority of guitar players, with classical players as an exception, are rather poor sight readers. So I will discuss some aspects of standard notation as we go along.

Reading Music (a series under development)

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Lesson 1 :
Introduction to Scales



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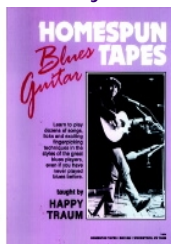
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Reading Music

Reading Basic Rhythm -
Part 1



Books

Part 1 - Know Where to Find the Basic Notes In C-Major

If you do not read music in one form or another, your possibilities for learning are rather limited. You cannot use books and very little of what you find on the internet. Audio- and video lessons may work, but still it will be better if you can use the printed material that usually comes with these lessons. Some people have asked me if I can explain more in depth about reading music, and I take the challenge.

There are of course many skill-levels, also when it comes to reading music. Guitar players are often much better players than they are readers. You should at least be able to work out the music for a written source, even though it may take a lot of time to do so. Professional studio musicians need to be good sight readers, and be able to play the music at first sight.

First, there are two very different approaches to writing music. You can write *what* to play, and you can write *how* to play it. If you write what to play, your writing can be instrument neutral, although music is usually written with one particular instrument in mind. If you can read music written in this form, you can read music written for other instruments than your own. To read music like this, you must learn how to read standard notation.

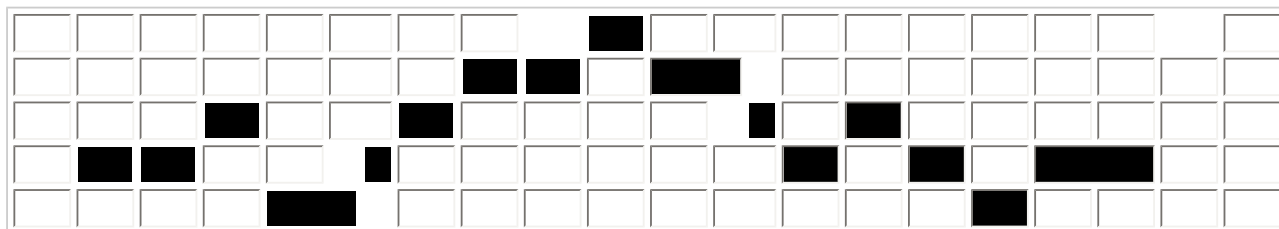
For guitarists, the *how to* approach means tablature and chord diagrams. I find it much easier to play from tablature than from standard notation. But it have of course to do with (lack of) practise, and I think you should be able to use both, at least at a basic level.

When you write music, you write pitches played in sequence and simultaneously, and you write rhythm. You read it just as you read plain language, from left to right. But there are some differences. When writing words, all is written in sequence. Certain combinations of letters are pronounced as one sound, but they are still written one after the other. In music, notes played simultaneously will be stacked on top of each other. If we should do the same in normal writing, it would be something like this:

T h e r e i s n o r m a l y t h e n o t e s i n a c h o r d , a n d f o r n o t e s i n a b a r

But as we cannot pronounce more than one sound at the time, we do not write anything like "verbal chords". And our normal writing does not tell the rhythm.

It is easy to imagine that music can be expressed graphically. You will easily see the movement in music from a graph like this:

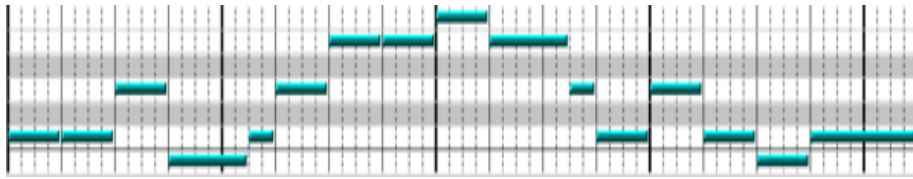


But it is not enough to know that the music goes up and down. We need to know how far up and down, and the duration of the notes. In the grid above, we can see if it moves up or down one step or more, and by varying the length of the bars in the grid, we can indicate the duration. If we add names to the pitches, you can play it:

F																			
E																			
D																			

[illegible]

If you use *piano roll notation*, as you can find in many sequencer programs, it can look like this:



We can put the same information on a standard music staff lines:



So far, the main difference from the previous example is that now we put the bars both *on* and *between* the lines, and not only one of them. It makes the grid, if we still call it that, more compact and easier to read. We would need 10 lines instead of 5 to express the same information, if we only should use the positions between the lines. It is more difficult to see the position in an instant if we have to digest the information from 10 lines.

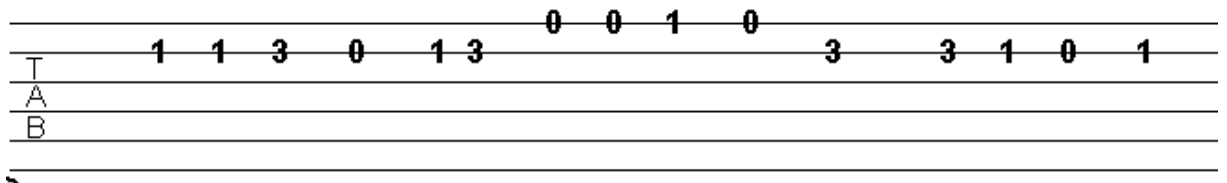
It is not easy to read the duration from the length of the bars. Even if you do not yet know what the symbols on the lines below mean, there is no doubt that it is more easy to distinguish between them than to estimate the length of the various bars on the lines above. It is easier if you put in on this form:



If you listen to the melody, you will hear that it is a rather well known song.

To summarize: In standard notation, the vertical positioning indicate the pitch. The kind of symbol used, indicate the duration of the notes.

If we write the same line in tablature, it will look like this:



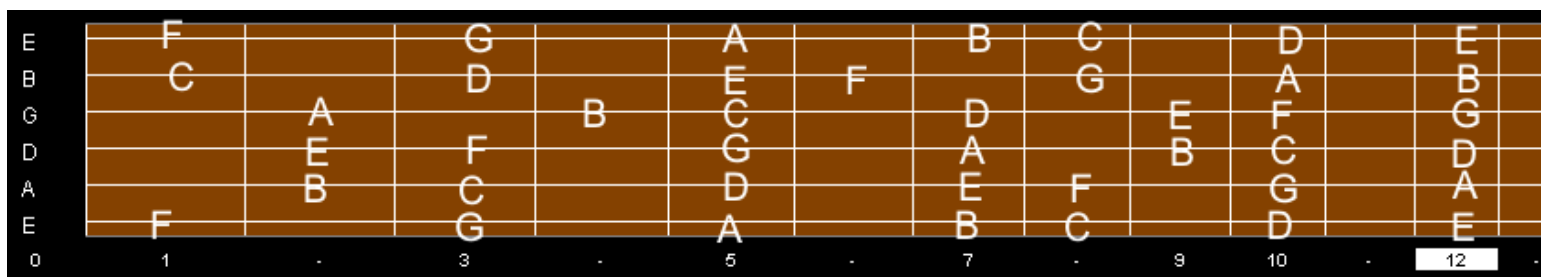
From the tablature, it is easier to understand where to put your fingers and how to play. A **1** on the top line is the first string played on first fret, a **0** on the second line is second string played open, a **5** on the bottom line is the sixth string fifth fret, etc. But it does not give many clues on how the music should sound. There is no doubt that the tab is easier to learn. Every guitarist knows the six strings and is able to count the frets. It may take some time to learn to play from tab without having to take any breaks to think what to play next. But it does not require much knowledge and it may still sound good even if you do not know what you are playing.



The standard notation does not tell where to put your fingers or which string(s) to play. You have to *know* that the note to the left, placed in the second space from the top, is a C. Then you have to *know* where you find the C on the guitar. The note does not tell you that you can find this C on second string, first fret. So to use standard notation you have to invest some time in learning the system. But in my opinion, it is worth the time and effort.

To use standard notation, it is not enough to know which notes you get in the various positions on the staff. You must also know where you find these notes on your guitar, and this is not as easy as saying that you can

play the white keys at the keyboard from C to C. So it *is* more difficult to apply standard notation to a guitar than to keyboard and many other instruments. Below is all the notes in the C-major scale on the fingerboard. We will come back to the other notes later.



Then you have to learn the notes on the staff. The notes *on* the lines are **E - G - B - D - F**:

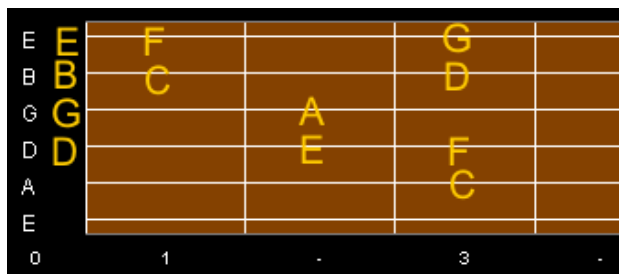
The notes *between* the lines are **F - A - C - E**. The note *below* is **D** and the note *above* is **G**. From below to above, the notes between the lines are **D - F - A - C - E - G**.

There is no way around this. You have to learn this. You can use some memory hooks. For the notes between the line, it is easy. It is the word **FACE**. On the line, it is more difficult. Once upon a time, I learned a phrase in Norwegian, but this phrase will probably not help *your* memory. But you can try with a sentence like **Electric Guitar Blues Done Fast**. Some of you may have better suggestions.

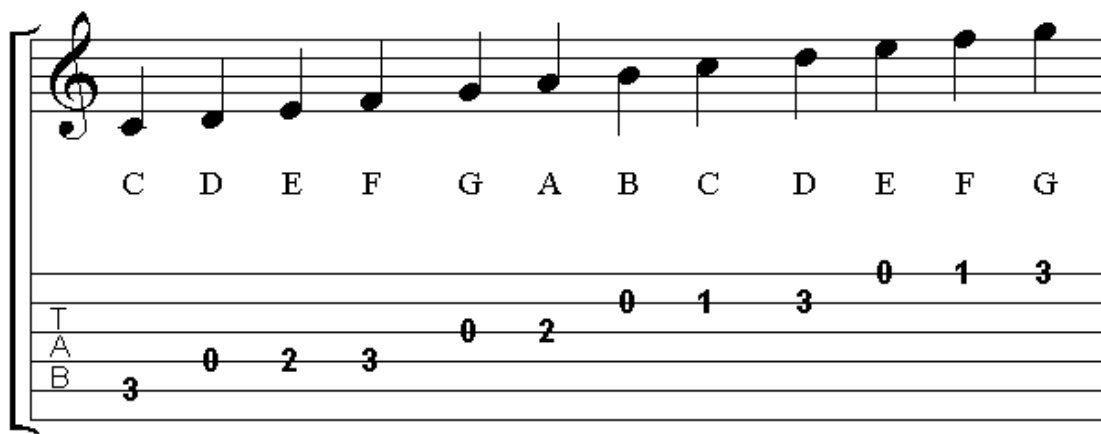
As we start with C-major, we have to include one topic that would have preferred to leave until a bit later: *Helping lines*. If we go below or above the grid, we need to know how far up or down we go. We simply add lines on top of or below the lines. The note just under the lowest line is D. To indicate the note below, we add the little helping line, and put the C on this line. If we go very low, it would be very inconvenient with many such helping lines. There are other systems (clefs) designed to notate lower notes, for instance if you are playing bass. But they are not used for guitar music, so they will not be covered here.

It does not help very much to know the written notes if you do not know where you find them on the guitar. One of the difficulties with the guitar is that you can find the same note in more than one position. If the written music say that you shall play a low C, you have two choices: 3rd fret on the 5th string, or 8th fret on the 6th string. We will come back to this later. By now we will only stay in the position. So your first assignment will be to learn where on the staff you find the notes C-D-E-F-G-A-B-c-d-e-f-g, and where you find these notes on your guitar in open position.

These are the notes and positions we will work with for a while:



In notes and tablature, the notes from C to g are:



The tablature tells you where to put your fingers: 5th string 3rd fret (C), 4th string open (D), 4th string 2nd fret (E), 4th string 3rd fret (F), 3rd string open (G), 3rd string 2nd fret (A), 2nd string open (B), 2nd string 1st fret (c), 2nd string 3rd fret (d), 1st string open (e), 1st string 1st fret (f) and 1st string 3rd fret (g). But see how the standard notation clearly illustrates that the word *scale* is derived from the Italian word for *stair*.

In the next lesson, we will start to read rhythm.

Reading Music (a series under development)

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- [Reading Basic Rhythm - Part 2](#)

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Go here for some **books on music reading for guitarists**.

[Reading Basic Rhythm -
Part 1](#)



Further references

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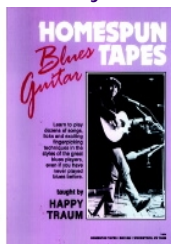
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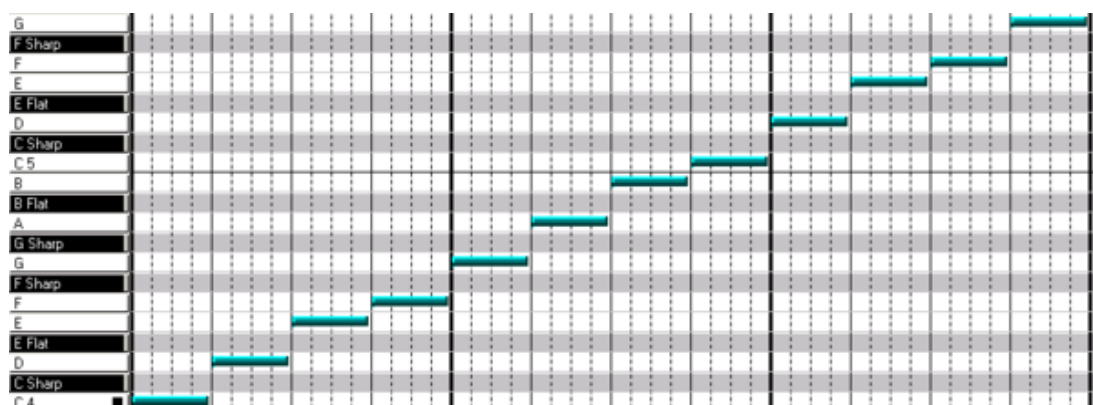
Books

If you want to work on reading rhythm, you simply have to have a **metronome**. It is hardly possible to practice this without this little device helping you to keep the basic tempo. Go to the [metronome page](#) if you do not already have a **metronome**.

You should by now understand that the notes goes up and down as the music (pitches) go up and down, and hopefully you have learned where on the staff you find the various notes. You should also know that the various note-symbols indicate different durations of the notes.

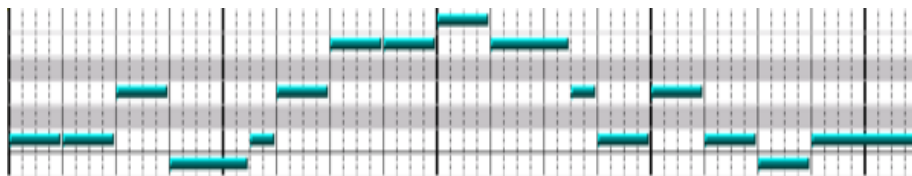
Now it is time to discuss rhythm. It took me a long time before I could read the rhythm from printed music. It might be because I am not very talented, or because no one really told me how to approach this.

I have called the staff (note system) a *grid*. It is not really true – it is only lines. But still I think it helps to think of it as a grid. So far we have covered 12 notes, from middle C to high G. Instead of putting them on lines, we could put them in a grid and fill it with the notes we play. Let us now think that each solid vertical line indicates one second of music. This would actually be a very slow tempo, but it is easy to use as an illustration. Each such time unit will be one *beat*. Now we can fill in the grid and indicate pitch, sequence and duration of each note. If you are using "piano roll notation" in a sequencer program, this is how you write it:



If you listen to the MIDI file, it is made with the tempo *120 beats pr minute*, which means that each of the horizontal bars will be $\frac{1}{2}$ second long.

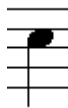
If we take another look at the *piano roll* from the first lesson, we will see that the length of the horizontal bars varies, indicating variation in note length:



A notation like that might be easy to understand, but it is not easy to read. Instead we use symbols that indicate the duration. But before we go to them, I have to explain that the beats are grouped into *bars*, and the grouping says something about the basic rhythm. The beats can be grouped in many different ways. But we start with the most common: Four beats to the bar. In the staff there is a vertical line between the bars. And at the beginning the basic rhythm is indicated, usually with a number. 4/4 is four beats to the bar. We will come back to this. But I introduce it now because groups of four notes are the basis when we count the length of notes. For some reason – I do not know why - a whole note is four beats long. The symbol is an ellipse that is not filled, with no stem, like this:



From there, it is simple fractional arithmetic – if you find this simple (some find it very hard). Each time you add something to a note, you divide it by two. Add a stem to the whole note, and you get a half note. The half note is two beats, and looks like the symbol to the left.



Fill the note, and you get a quarter note that is beat.

This is a bit confusing, but – at least as I see it – the quarter note is the basis: one beat. When you are counting, you are counting the quarter notes (beats), and when you are using a metronome, it will usually give one click or beep for each quarter note (beat).

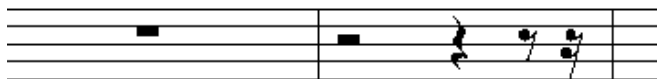


We can continue to divide notes, and now we start to add flags on the stems. If we divide one quarter in two equal parts, we get two 1/8 notes. The we can divide them into 1/16, to 1/32, 1/64 etc. by adding more flags, as I have done to the right. In principle, there is no limit to how far you can go. But if they are too short, we cannot really distinguish them, and in no way play them.



If you put a dot behind a note, it's duration is extended by 50%. A quarter note is one beat, a dotted quarter note is one and a half beat.

We do not have to divide the notes by two. We can also divide by three. When three 1/8 notes are tied together like the three notes to the left, it means that it is three notes to the beat, and it is called a *triplet*. You can also find 5, 7, 11 or in principle what ever number you can imagine. But we will not go any further that to three.



You will not play without rests. The music have to "breath" to sound good. The rests follow the same principles as the notes: Whole (four beats), semi (two beats), quarter (one beat), 1/8, 1/16 etc. They are showed in this order on the figure to the left.

It is not too difficult to understand the principles. But that does not mean that you can actually read rhythm. You should be able to "hear" the rhythm when you read the score. There are three answers to how you can develop that: Practise, practise and practise. Put on your metronome at a nice and slow tempo, and tap the rhythm (or play the melody with the rhythm).

In tablature, the rhythm will sometimes be written, sometimes not. If standard notation and tab are written in parallel, you may have to read the rhythm from the standard notation. There is no set standard here. But *if* the rhythm is written, it is written in the same way as standard notation, with only one non-important difference: We cannot distinguish between filled and non-filled numbers, which means that no notes are longer than a quarter notes. A half note will be written as two quarter notes tied together.

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- [Reading Basic Rhythm - Part 2](#)

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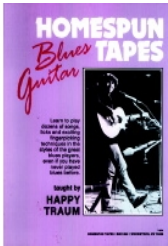
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Part 1



Books

I said in the first part that notes are grouped. How the notes are grouped, defines the basic rhythm. The most common way of grouping notes, is four beats to the bar.

I have put together the melody below to illustrate how notes are grouped in four beats pr bar. The melody will not be my breakthrough as a hit composer. But if you listen to the MIDI track while you are reading the notes, you should be able to *hear* how the notes are grouped together, and not only see it. The first note in each group of four is slightly emphasized. The numbers between the standard notation and the tab, indicate how you count the beats, by counting to four in each bar.

4/4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4
T			1 1 1	
A	2 2 2 2	0 2 2 2	2	2 0 0 0
B	3			

5/4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4
T				
A	2 0 0 0	2	0 2 2 2	3
B		3 3 3		

If we go back to the example from the first lesson, it should be grouped into three beats pr bar, which gives the meter 3/4. Here you have to count **1 - 2 - 3, 1 - 2 - 3**, etc. When counting the dotted quarter note followed by an 1/8 note, you count **(1 - 2) and 3**. The "two and" divided the note, and the 1/8 note fall on the second part – the "and".

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- [Open C Tuning](#)
- [Silent Night in Open C Tuning](#)
- [Minor Blues](#)
- [Reading Music - Lesson 3](#)
- [Reading Music - Reading Chords](#)
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1 1 3 0 1 3 0 0 1

0 3 1 3 1 0 1

I will come back to more rhythm reading later. But this is it for now. Next time I will discuss reading of intervals, and then reading of chords, before I come back to more melody and rhythms.

Reading Music (a series under development)

- [Part 1 - Know Where to Find the Basic Notes In C-Major](#)
- [Reading Basic Rhythm - Part 1](#)
- [Reading Basic Rhythm - Part 2](#)
- [Reading Intervals - part 1](#)
- [Reading Chords - part 1 * Part 2 * Part 3](#)

Go here for some **books on music reading for guitarists.**



**Reading Basic Rhythm
Part 1**

**Reading Intervals
Part 1**



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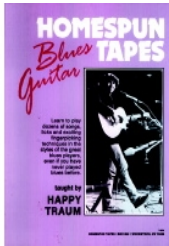
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Reading Intervals - part 1



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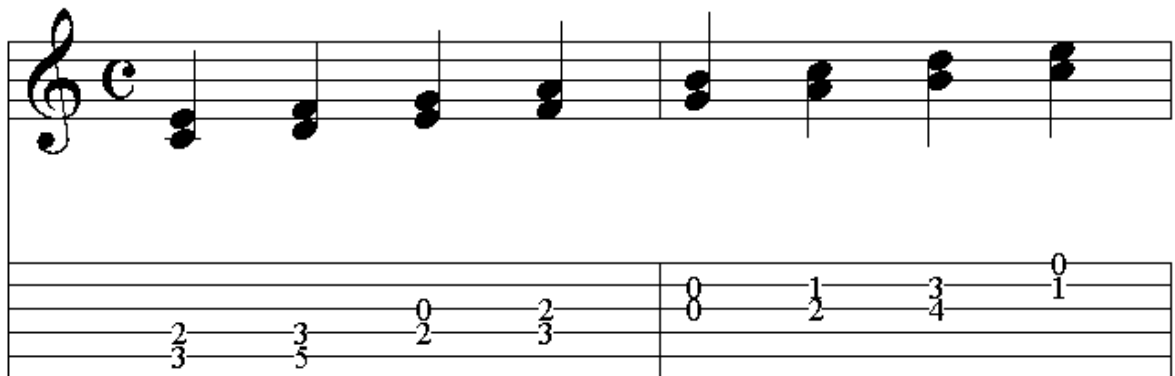


Books

Reading a simple melody in standard notation is not too hard. Intervals and chords are worse – until you have learned it. You can instantaneously get more information from standard notation than from tablature. In tablature you have to relate to the interval- and chord shapes. And even when you know the shapes, you will often not know chord inversion etc. But: As with reading text, you have to know not only the words, you have to know and understand the concepts represented by the words. Translated to reading music, this means that you must know and understand the intervals, *and* you have to know where on the fretboard you find them.

We start with the **third**, as this is a very basic interval. All standard chords in root position are built with stacks of thirds. In a third, you jump one note in a scale: It is 1-3, 2-4, 3-5, etc. There will always be one empty position between the two played notes. In standard notation, this means that the notes will have no space between them, and not be overlapping. Both notes will be either on a line or in a space between two lines. Go to the **Thirds page** in the **Theory section** for more on thirds.

Below are thirds built on the notes of the C-major scale. Notice that all the notes are close with no space in between, but not overlapping.



Whenever you have two notes positioned like this, you know that it is a third. But you will not know what kind of third it is: Major or minor. You have to know how to harmonize a scale with thirds. There are two positions, one for major and one for minor third, that you can apply in every position on the string pairs 6-5, 5-4, 4-3 and 2-1. And then there are two other positions for the strings 3-2, because the interval between these two strings is a major third, while the interval between the other strings is a perfect fourth.

The standard notation will tell you if the interval is a diatonic interval or not. If there is no extra # or b, then it is a diatonic interval (interval with notes from the scale you are using). This is true as long as we are playing in the basic scales. If you know how to harmonize a scale in thirds, then you know all the diatonic thirds. When you then read the notes F and A, you do not have to read both notes and put them together. You read it as a third built on an F. If you know where to find the F, and how to finger a third, then you know how to play it. I will repeat this many times in this lesson and in coming lessons: When you read text, you do not have to spell every word. You read the word, not the individual letters, and sometimes you read phrases and not the single words. That is how you do it when you read music as well. You read intervals, chords, phrases, etc, and not just the individual notes.

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- **Silent Night in Open C Tuning**
- **Minor Blues**
- **Reading Music - Lesson 3**
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More on Thirds

- **Theory: Intervals - Thirds**
- **Intervals - Major Thirds, the Basic Shapes**
- **Intervals - Minor Thirds, the Basic Shapes**
- **Fretboard: Harmonized Scale, 3rd, Horizontal**
- **Fretboard: Harmonized Scale, 3rd, Vertical Part 1**
- **Fretboard: Harmonized Scale, 3rd, Vertical Part 2**
- **Guitar Scale Exercises in G-major, Box 1**
- **Guitar Scale Exercises in G-major, Box 1 - 4 notes, Thirds - Part 1**
- **Guitar Scale Exercises in G-major, Box 1 - 4 notes, Thirds - Part 2**

If we reduce the interval to a **second**, the notes will be overlapping. If one of the notes is on a line, the other will be in the space next to it. Again, the graphics without some additional information will not tell if it is a major or minor second, just that it is some kind of a second.

The image shows a musical staff in 4/4 time with a treble clef, containing a scale of seconds (half steps) in G major. The notes are G4, A4, B4, C5, D5, E5, F#5, and G5. Below the staff is a guitar tablature with two systems. The first system shows fret numbers for strings T, A, B, and E. The second system shows fret numbers for strings D, G, B, and E. The fret numbers are: T (0, 2, 3, 0), A (3, 5, 7, 3), B (0, 2, 4, 5), and E (2, 2, 4, 5).

The seconds, particularly the *minor second*, are the most dissonant of the intervals. They may be a bit hard to play harmonically. But you will not play them very often, so it does not really matter.

Now we can expand the interval to a **fourth**. In a fourth, one note will always be *on the line*, and the other *between the lines*, and there will be a *half space between the notes*.

The image shows a musical staff in 4/4 time with a treble clef, containing a scale of fourths in G major. The notes are G4, C5, F#5, B4, E5, A5, D6, and G6. Below the staff is a guitar tablature with two systems. The first system shows fret numbers for strings T, A, B, and E. The second system shows fret numbers for strings D, G, B, and E. The fret numbers are: T (3, 0, 2, 4), A (0, 2, 4, 3), B (1, 3, 0, 1), and E (0, 2, 0, 1).

All but one of the fourths are **perfect fourths**. But there is one **augmented fourth (tritone)** among them. I am not going to tell you which one it is – you should be able to *hear* it.

The last interval we will cover in this lesson is the **fifth**. In a fifth, both notes will either be on the lines, or between the lines. And there will be one full space between the notes. I have given two different fingerings for this scale harmonized in fifths. But the notes are the same. You will see that the standard notation are the same in both examples, but the tablatures are different.

The first staff shows a sequence of notes: C4, D4, E4, F4, G4, A4, B4, C5. The second staff shows a sequence of notes: C4, D4, E4, F4, G4, A4, B4, C5. Below each staff is a guitar fretboard diagram with fingerings for each note.

Again, all the intervals but one are *perfect fifths*. Then there is one *diminished fifth (tritone)*, but again I think you should figure out which interval this is by ear.

Fifths

- | | | |
|--|---|--|
| <ul style="list-style-type: none"> Theory: The Perfect Fifth Theory: Reading Intervals - Part 1 Scales harmonized in fifths - C-major | <ul style="list-style-type: none"> Scales harmonized in fifths - D-major Scales harmonized in fifths - E-major Scales harmonized in fifths - F-major | <ul style="list-style-type: none"> Scales harmonized in fifths - G-major Scales harmonized in fifths - A-major Scales harmonized in inverted fifths |
|--|---|--|

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- | | |
|--|---|
| <ul style="list-style-type: none"> Part 1 - Know Where to Find the Basic Notes In C-Major Reading Basic Rhythm - Part 1 Reading Basic Rhythm - Part 2 | <ul style="list-style-type: none"> Reading Intervals - part 1 Reading Chords - part 1 * Part 2 * Part 3 |
|--|---|



Reading Basic Rhythm
Part 2

Reading Chords
Lesson 1, Part 1



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Reading Chords - Lesson 1, part 1: Triads in root position



Reading Intervals
Part 1

Reading Chords
Lesson 1, Part 2



Books

Being able to read chords compared to individual notes, is as being able to read words and not just spell the letters when reading a text. We should know by now that if two notes have no space between them, and there is no overlapping overlapping of the notes, then they make up a thid. If you do not really know this, then go back to [Reading Intervals, part 1](#). If you also know that a **triad in root position** is made by two thirds stacked on top of each other, then it should not be too hard to figure out that three notes with no space between the notes and no overlapping, is a triad of some kind.



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- [Minor Blues](#)
- [Reading Music - Lesson 3](#)
- [Reading Music - Reading Chords](#)
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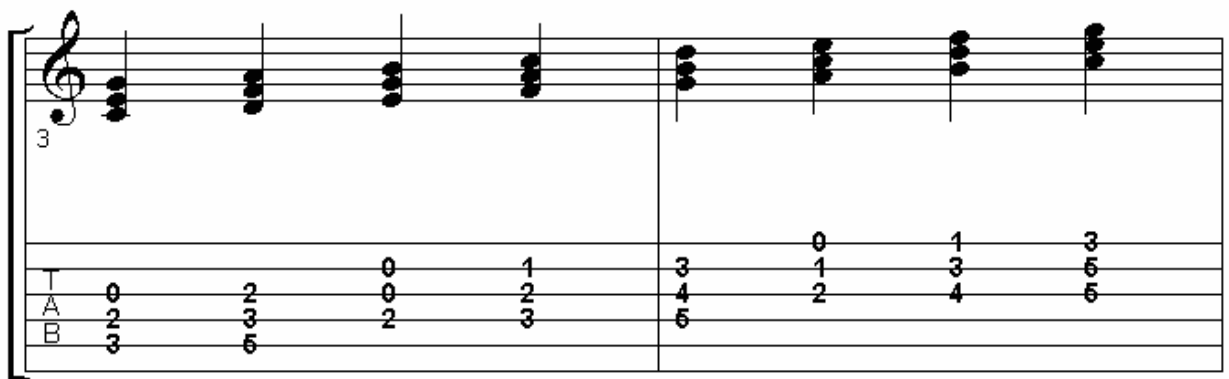
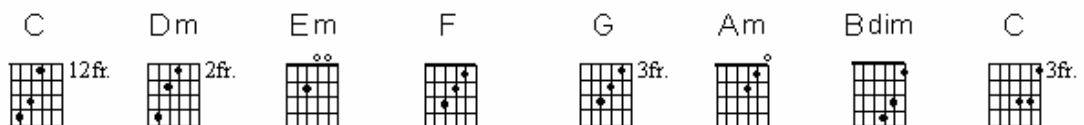
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A keyboard player or a classical trained guitarist will probably think of the notes D-F-A as just that: D-F-A. But many of us other guitar players will think of it as a D-minor chord. That is why I think it is important to be able to identify the chords when reading music.

This stack of three notes tells us that it is a triad, but not what kind of triad it is. So you must either read the notes D-F-A and have the knowledge that this is a D-minor chord, or know that a triad on the D will be a D-minor in this specific context. I said either or, but you should really know both. The point is that you must be able to process the information fast enough to be able to play it before it it late and the music has moved on.

The main difficulty of reading music for guitar is not to decipher the dots on the paper, but to apply the result to the neck of your guitar. Too many of us will read the music, find each note on the fretboard, and then recognize the fingering position as a certain chord. If we can recognize the chord when we read the music, it will be a quicker process.

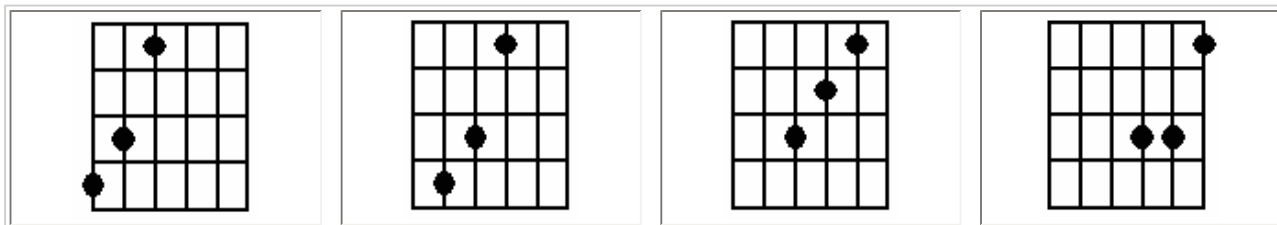
So far we have only dealt with they key C-major. If you know that the **primary chords** in C-major are **C**, **F** and **G**, and that the **secondary chords** are **Dm**, **Em** and **Am**, then you are well on your way. Add that a trian on the B is a **Bdim**, just to be complete. These chords make up the **harmonized scale** in C-major. In root position, a C-major scale harmonized in triads will look like this:



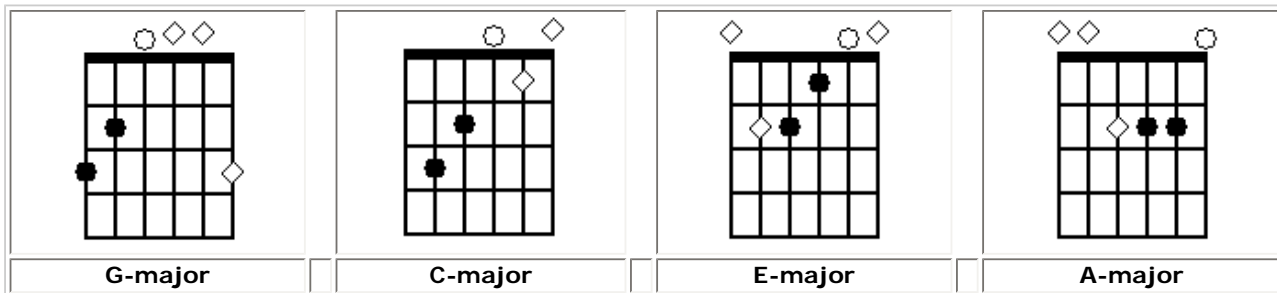
Notice that all the chords in the staff are made up the same way.

You do of course need to know how to finger these chord in various positions, to be able to play them. These

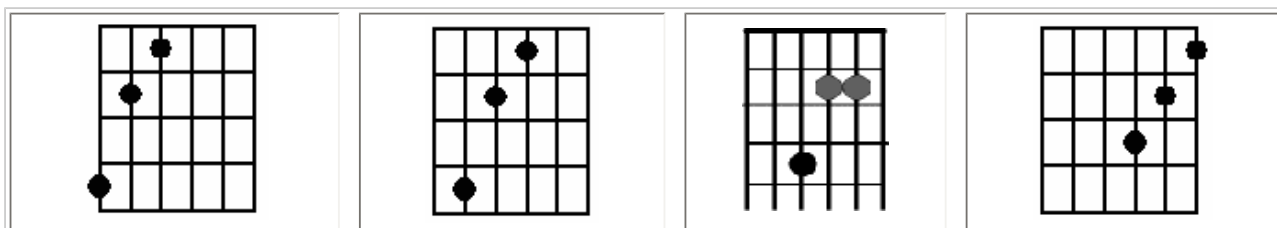
are the four fingerings for major triads in root position:



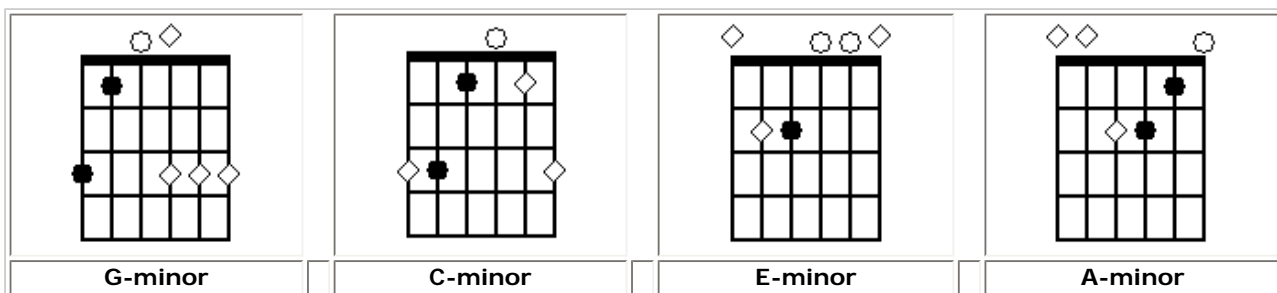
We can of course also play with open strings, but then the shapes will not be moveable. You will recognize these shapes as parts of our familiar basic shapes. (The notes in the basic chords that are added to the basic triad in root positions are marked with a diamond.)



We have similar shapes for the **minor triads in root positions**:



These are the chords triads with open strings.



The reason for starting with C-major is that there are no sharps (#) or flats (b) in this key. The same goes for the key A-minor. If there are some accidentals (sharps or flats just before a note), then you know that you are supposed to play some chromatic notes – notes outside of the key. This again mean that the chord is a non-diatonic chord. We will come back to these issues later. So far it is sufficient to say that as long as there are noe accidentals, then the chords are diatonic chords – either one of the primary or secondary chords.

We will come back to the differences between keys later in this series. But you can find the chords in all keys if you look at these harmonized scales:

Harmonized scales with Triads

Root	C	C#/Db	D	D#/Eb	E	F	F#/Gb	G	G#/Ab	A	Bb	B
1. inv	C	C#/Db	D	D#/Eb	E	F	F#/Gb	G	G#/Ab	A	Bb	B
2. inv	C	C#/Db	D	D#/Eb	E	F	F#/Gb	G	G#/Ab	A	Bb	B

Reading Music (a series under development)

- [Part 1 - Know Where to Find the Basic Notes In C-Major](#)
- [Reading Basic Rhythm - Part 1](#)
- [Reading Basic Rhythm - Part 2](#)

- [Reading Intervals - part 1](#)
- [Reading Chords - part 1](#) * [Part 2](#) * [Part 3](#)



[Reading Intervals
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[Reading Chords
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Reading Chords - Lesson 1, part 2: Triads in first inversion



[Reading Chords
Lesson 1, Part 1](#)

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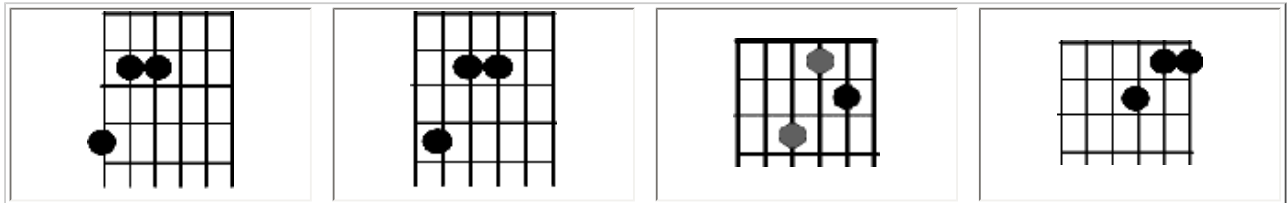
Books

A chord can be inverted, and an inverted chord will not look the same in the staff. If the chord – the triad – starts with a third and then have a fourth on top of the third, then the chord is in **first inversion**. If you do not remember what a third and a fourth look like, go back to [Reading Intervals, part 1](#). A triad in first inversion will always look like the example to the right:

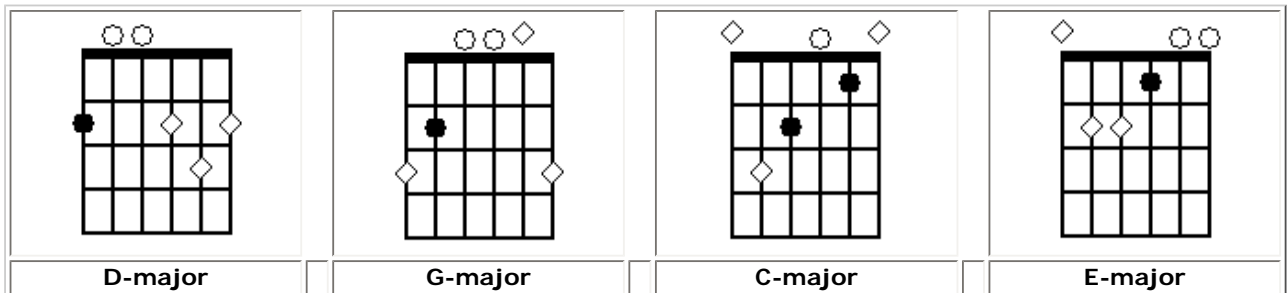


To know which chord you are playing, you need to know the root. In first inversion, the root is on top of the chord. You can of course also know that the chord has a third at the bottom, and know the thirds of all the chord. But I think it is easier to see that it is first inversion and has an E on the top, then it must be some kind of an E-chord. If we are in C-major, you should know that unless there are some accidentals, it must be **Em**.

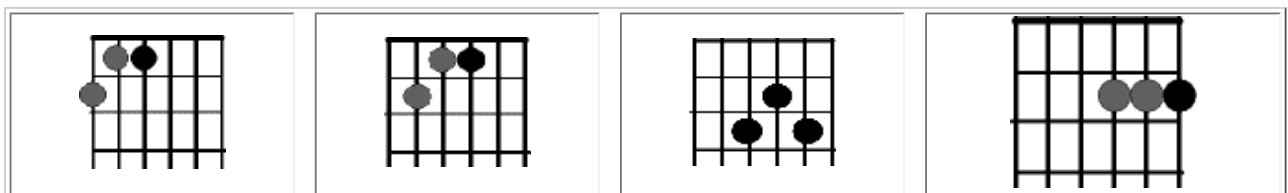
The four closed shapes for major chords in first inversion are these:



If we include open strings, we will get these chords:



The corresponding **minor triads in first inversion** are:

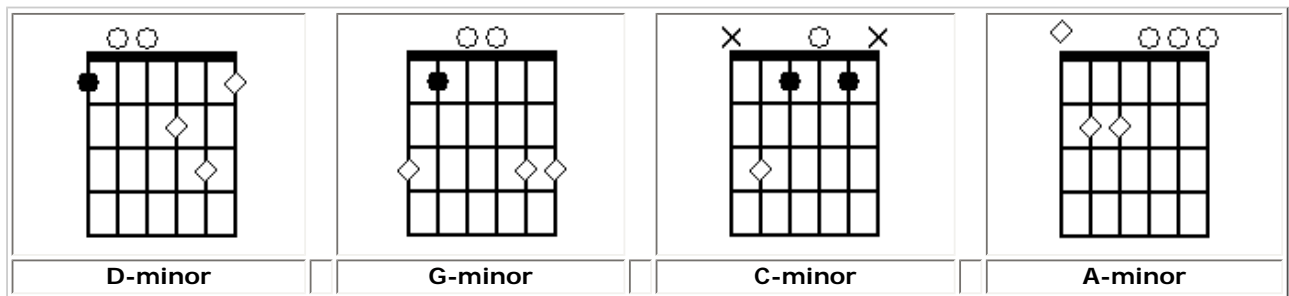


These are the minor chords (triads) with open strings.

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If the chord starts with a fourth as the bottom interval, and then has a third on top of it, then the chord is in **second inversion**. For chords in second inversion, the root is in the middle, and it will always look like the examples in this harmonized scale:

	C	Dm	Em	F	G	Am	Bdim	C
T	1	3	0	1	3	5	7	8
A	0	2	0	1	3	5	6	8
B	2	3	0	2	4	6	7	9

When playing our familiar guitar chords, we often play more than three notes. It may still be a triad, but with some of the notes doubled. You should be able to identify some of the basic triad-stacks of notes in there.

They may also be larger chords, such as sevenths, ninths or other chords with four or more notes. But you will usually still have the basic triad in the chord. And if you cannot recognize the triads, this knowledge will still be very useful in all the instances when you find these basic chords.

Harmonized scales with Triads

Root	C	C#/Db	D	D#/Eb	E	F	F#/Gb	G	G#/Ab	A	Bb	B
1. inv	C	C#/Db	D	D#/Eb	E	F	F#/Gb	G	G#/Ab	A	Bb	B
2. inv	C	C#/Db	D	D#/Eb	E	F	F#/Gb	G	G#/Ab	A	Bb	B

Reading Music (a series under development)

- [Part 1 - Know Where to Find the Basic Notes In C-Major](#)
- [Reading Basic Rhythm - Part 1](#)
- [Reading Basic Rhythm - Part 2](#)

- [Reading Intervals - part 1](#)
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Reading Chords
Lesson 1, Part 1

Reading Chords
Lesson 1, Part 3



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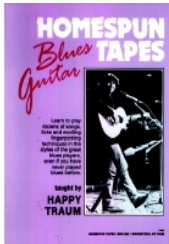
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Reading Chords - Lesson 1, part 3: Triads in Second inversion



Reading Chords
Lesson 1, Part 2



Books

If the chord starts with a fourth as the bottom interval, and then has a third on top of it, then the chord is in **second inversion**. For chords in second inversion, the root is in the middle, and they will always look like the two examples to the right:



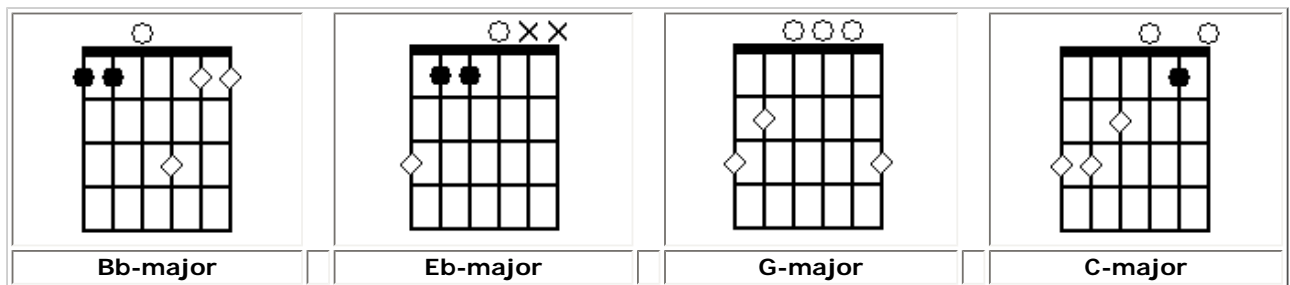
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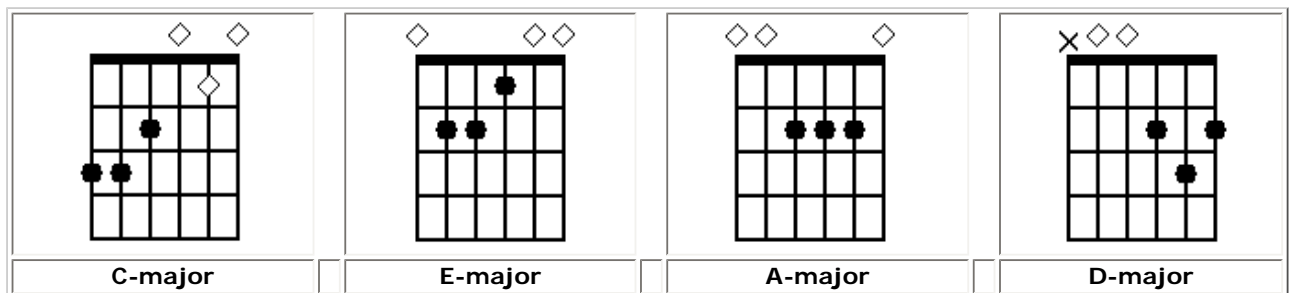
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If we include open strings *in the triads*, we will get these chords:



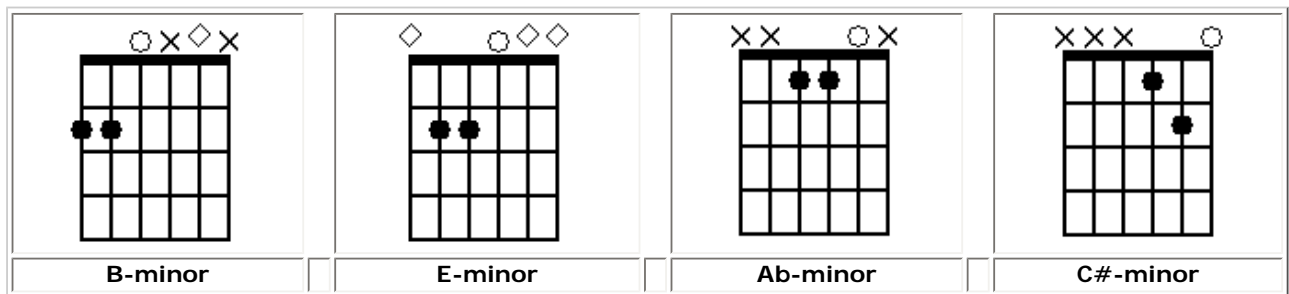
But to see the relation between these second inversion triads and some well known chords, we must play some open strings *with* the triads, which will give us these chords:



The corresponding **minor triads in second inversion** are:



These are the minor chords (triads) with open strings in the triads.



I guess that you see that two of the shapes are basic **Am** and **Dm** shapes.

We will also end this part with a harmonized scale with the diatonic chords of C-major in 2nd inversion:

C

Dm

Em

F

G

Am

Bdim

C

	T			A			B		
2	3	2	2	3	0	1	3	0	
3	5	2	3	0	2	4	0		
3	5	2	3	0	2	3			

This concludes this lesson.

Harmonized scales with Triads												
Root	C	C#/Db	D	D#/Eb	E	F	F#/Gb	G	G#/Ab	A	Bb	B
1. inv	C	C#/Db	D	D#/Eb	E	F	F#/Gb	G	G#/Ab	A	Bb	B
2. inv	C	C#/Db	D	D#/Eb	E	F	F#/Gb	G	G#/Ab	A	Bb	B

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Reading Chords
Lesson 1, Part 2



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Lesson 1 - Introduction to Scales


[Introduction](#)
[Introduction to Intervals:
The Perfect Fifth](#)


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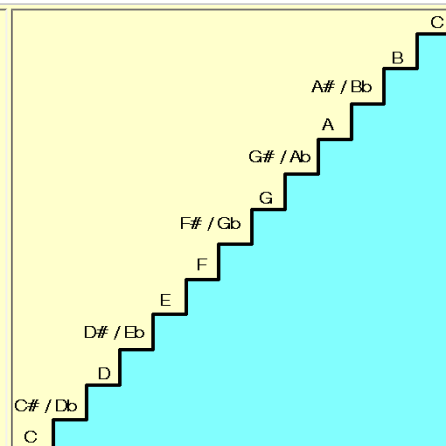
This is an introduction to the musical concept of a scale, not on how to play scales. Some time in the future I will write some lessons on how to play scales.

The word **scale** is derived from Italian, and means *stair*. I tend to think of it more as a ladder than a stair, but they are both climbing devices. The scale is a climbing series of notes. It is the series of notes that climbs from one note to the note one octave above, which is when the notes start to repeat themselves. In purely physical terms, the note one octave above has the double frequency of the one below. If we start from the standard A of a tuning fork, it swings with 440 Hz (swings per second). The note one octave above is another A, with the frequency 880 Hz, and the note one octave below is 220 Hz.

The scale divide the octave into various steps. It is divided into 12 equal steps. These steps are labeled **half steps**. On your guitar, one step is one fret. If you play one of the strings from open string, and go up one fret at a time up to 12th fret, then you have played every half step up one octave. But you will notice that this does not sound very musical. This is the **Chromatic scale**. Chromatic is derived from color, but the scale does not sound very colourful.

We could divide the scale into six equal whole-steps, which will give the **whole note scale**. It does not sound more musical. What makes the scale interesting, is that it is not divided into equal steps.

Having said that: In contemporary music one can hear both the chromatic 12-tone scale and the 6-tone whole note scale. But we will not look into how to apply these scales.



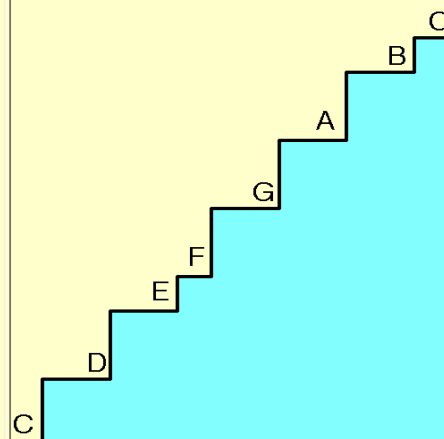
The **major scale** consists of **five whole steps and two half steps**. The sequence is You would probably not pay you carpenter if he made the stairs in your house like a major scale. But we are going to play these stairs, not walk them. It is this combination of whole steps and half steps that gives the scale it's character. If we lay it out horizontally, it will be like this:



It has whole step - whole step - half step - whole step - whole step whole step - half step.

You should also know the **scale degrees** expressed in numbers. The root - the C in a C-scale, is 1. Then the rest is simple counting: D=2, E=3, F=4, G=5, A=6, B=7 and the high C=8, and at the same time 1 of the next scale starting from this note. ("The stair to the next floor"). We use this numbering when naming intervals, chord degrees, etc. So you better learn them.

Notice the half steps, and listen to their effect.



Finally we can look at the **C-major scale** in notation and tab:

The image shows a musical staff in 4/4 time with a treble clef. The scale is written as a sequence of eighth notes: C4, D4, E4, F4, G4, A4, B4, C5. Below the staff, a guitar fretboard diagram shows the fret numbers for each note: 3 (C4), 5 (D4), 2 (E4), 3 (F4), 5 (G4), 2 (A4), 4 (B4), and 5 (C5).

If you do not read standard notation. Notice the simple logic of the notation of the scale: One step up in the "grid" for each step of the scale.

There are many more scales, not only the major, and of course not only the **C-major**. But we will come back to that later.

As a guitar player, you should learn to play and practise scales in all keys an over the entire fingerboard. This mechanics of guitar playing is covered in my series **Navigating the fretboard**, a series I will suggest that you work with in parallel with these theory lessons.



Introduction

**Introduction to Intervals:
The Perfect Fifth**



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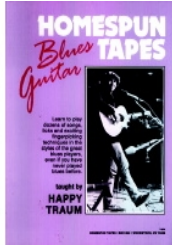
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Introduction to Intervals - The Perfect Fifth



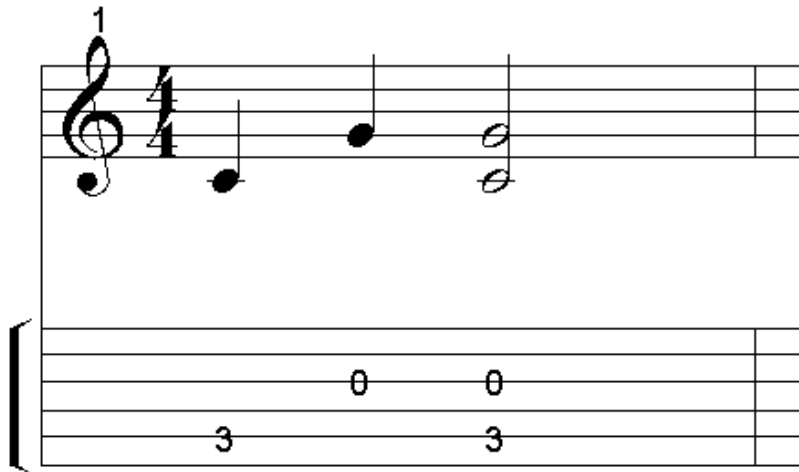
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An interval is the distance between two notes. If we really want to be precise, we could say that it is the *vertical distance*, as opposed to *horizontal distance*, which would be the distance in time (rhythm). But we will not care about this distinction, and say only that it is the distance between two notes.



The notes of an intervals can be *played in sequence*, one after the other. Then they are played as **melodic intervals**. If you play the two notes together at the same time, you play them as **harmonic intervals**. It is easier to identify an interval by ear if you hear one note at a time. But you should eventually be able to identify intervals both when played melodic and harmonic. As an example, I have written the interval **C - G**, which is a **perfect fifth**, both melodic and harmonic.

A listening technique

One very useful listening technique is called **unlocking**. As with all techniques, you have to start with a simple application. You play a harmonic interval at random. You can do it on your guitar, on a keyboard, or even better: Have someone play it to you (with all kind of ear training it is much better if you can do it with another person. Then you can concentrate on listening to what your partner play). Then sing the two notes of the interval. Sing the bottom tone, and then the top-tone (and vice versa). Start with smaller intervals, and expand them gradually. You can eventually extend this technique to chords, by singing bottom note, middle notes, top note, etc. But it is of course harder to unlock chords than to unlock intervals, and it is harder to unlock complex chords than basic chords. It is with this technique as with all others: Practise, practise and practise.

It is easier to learn a concept if you have a label and a description that can be attached to it. We must be able to distinguish between the intervals. We have to know the names of all the intervals, and of course the sound of these intervals. If we are able to describe the sounds, they are easier to remember and to distinguish. Wine experts use all kind of silly words to describe the color, bouquet and taste of a wine, and it makes it easier to remember and distinguish between tastes. We have to do some of the same with intervals and musical concepts.

Our first interval will be **The perfect fifth**, as shown above. (I know that it is called *perfect*, but I have never understood why. So I will be glad if someone can explain this to me.) The fifth is the fifth note up from the root. We will stick to the **key of C** for a while, and have the **C as the root** in all intervals. If we go up the C-major scale from C, where C is the first note, then D is the second, E is the third, F is the fourth and **G is the fifth note**. This means that a **perfect fifth up from C is G, and the interval C - G is a perfect fifth**. The fifth is **three and a half step above the root**, which equals 7 half steps = 7 frets on your guitar.

The counting of intervals might be a bit confusing. When you go up one step, it is a second, two notes up is a third, three notes up a fourth (we will come to these intervals later), and the fifth is four notes up from the root. The problem is that we are starting from one, and not from zero. The name fifth is the distance between the first and fifth note, and not five notes up from the root.

Now you have to program this interval into your brain. There are two ways, and you have to do both: Listen to the interval, and sing it! If you cannot sing it, then you do not know it as good as you should. Sing the interval up and down. Play the starting note, sing the interval and then play the second note to hear if you where right.

Continue with all note of the **C-major scale, except the B**, and sing perfect fifth's starting on the note. A perfect fifth up from B will take you to F#, which is not a member of the C-major scale. In the beginning, we will stick to the notes within C-major. The interval from B to F is a *tritone*, which is a dissonant interval that is hard to sing. As part of my **Ear Training lesson** you can find written examples with MIDI files of **all perfect fifths within a C-major scale: D-A, E-B, F-C, G-D and A-E**

You should know where you find all the fifths on your guitar. A good way to practise is to play scales in various keys harmonized in fifths. By this I mean that we play a harmony note one fifth above the scale note. But beware: We will use only notes from the C-major scale for harmony. This mean that we will not play a perfect fifth above the B. With the B we will play an F, which is a **diminished fifth** above the B. You will hear that it sounds different. Don't worry too much about this interval. We will cover this in another lesson. This will help you in learning the sound of the fifths, and it will give you a better knowledge of the fingerboard.



This first example is played *horizontally*. Playing *horizontally* mean that you move your fingers up and down the neck, without crossing over to other strings. It is not very "guitaristic", and is usually not the best way to play. But it is easier to see the harmonic movements when we play this way. We approach the chords more like you would do on a keyboard.

For other examples of fifths in C-major and other keys, cross over to the **Navigating the Fretboard** series.

Vocal harmony in fifths is one of the trade marks of the Beatles sound. For some discussion on this aspect of the Beatles sound, go to *Alan W. Pollack's Notes on Love Me Do*.

Fifths

- Theory: The Perfect Fifth
- Theory: Reading Intervals - Part 1
- Scales harmonized in fifths - C-major

- Scales harmonized in fifths - D-major
- Scales harmonized in fifths - E-major
- Scales harmonized in fifths - F-major

- Scales harmonized in fifths - G-major
- Scales harmonized in fifths - A-major
- Scales harmonized in inverted fifths



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Intervals:
The perfect fourth





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Intervals - The perfect fourth



Introduction to Intervals:
The Perfect Fifth

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Now you know what an interval is, and you know the **perfect fifth**. Then it is time to go on with the rest of the family. The next interval on our list, is the **perfect fourth**. The perfect fourth. The perfect fourth is **two and a half note above the root**. The intervals between the strings on your guitar are all fourths, except the interval between 2nd and 3rd string, assuming that you tune to standard tuning. Our first perfect fourth is **C to F**.

Go to my [Ear Training Lesson](#) for examples of the **other perfect fourths in the C-major scale: D-G, E-A, G-C, A-D and B-E**.

Notice the notation of intervals in standard notation. If you look at the **perfect fifths**, both the root and the fifth note are either on a line, or between lines. If the notes are on the line, then there is two half spaces and a line between the notes. If the notes are in spaces, there is two lines and a full space between the notes. If it is a **perfect fourth**, the fourth note is between lines if the root is on a line, and the fourth note is on a line if the root is between lines. There is one line and a half space between the notes.

As I said in the [previous lesson](#): It is easier to identify intervals if you can describe the sound in some way. Here are a few words that describes the perfect intervals (fifth and fourth): Strong, empty sounding, dignified, static. They sound satisfying in themselves, and do not sound as if they need to be resolved. But they also tend to be boring. If everything is nice and sweet, then it is usually too interesting. The perfect fifth is the stronger of the two. Violinists use the strength of the perfect fifth when they tune by bowing both notes together, adjusting until they hear an accurate perfect fifth. Piano tuners use the same technique when tuning a piano - tuning in fifths. The perfect fourth is weaker and unreliable, and it is much harder to use the fourth interval between the strings on the guitar (except between 2nd and 3rd string), for tuning. When trying to distinguish between perfect fifths and perfect fourths, I find the the perfect fifth sounds as if rooted on the bottom note, while the perfect fourth sounds as if it is rooted on the top note.

3	5	7	9	10	12	14	15
3	5	7	8	10	12	14	15

We can harmonize the scale in fourths, just as we did with fifths. The interval in itself sounds all right, but it seems to be something wrong with the scale. It does not start or end properly. The reason is that the note a fourth above the root - F in C major - is not part of the root chord. You will hear it as a IV-chord (F-chord) or maybe a vi-chord (Am), which does not sound right neither as a beginning nor as an end. We will come back to these chords later.

There is one fourth that is not "perfect", just as there was one fifth that was not "perfect". The fourth from **F to B** is three whole steps, and not two and a half, as the perfect fourth. It is an **augmented fourth** or a **tritone**. The distance between the two notes are the same as the distance **B to F (diminished fifth)**.

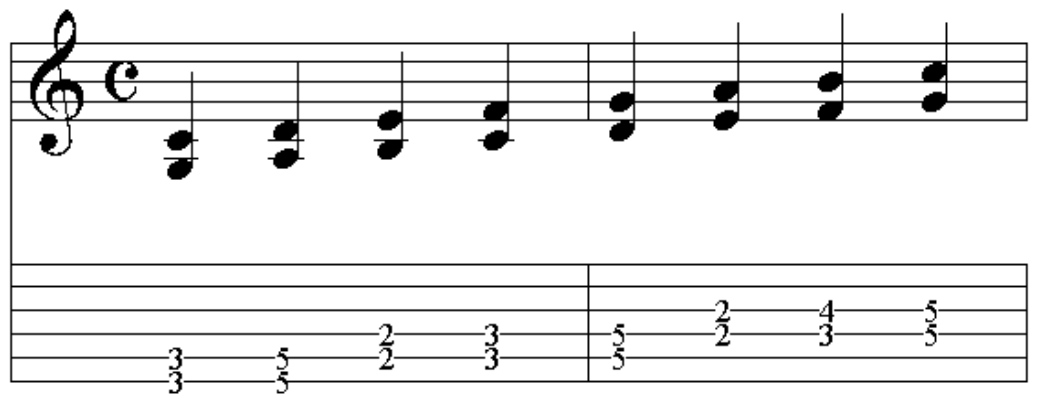
Inversion of intervals mean that we are changing the orders of the notes in an interval. We move the root up one octave, or the note down one octave. The result is the same: We get the root on top, and the other note on the bottom. We will go through the intervals once more, in the same order as we did when we first looked at them.

If we move the root of the fifth interval **C-G** up one octave, we get **G-C**. But the **G-C** is a fourth. And this is what you should know: **The inversion of a perfect fifth is a perfect fourth**. Listen to the two intervals. I do not write the examples. You need to take another look, you can either go back, or go to **C-G** and **G-C** in my **Ear training lessons**. If you have found it difficult to distinguish between perfect fifths and perfect fourths, this is the reason: **The same two notes can give both a perfect fifth and a perfect fourth**.

C-G: Perfect Fifth:

G-C: Perfect Fourth:

3	5	7	8	10	12	13	15
3	5	7	8	10	12	13	15



You might say that it does not make sense to call the **perfect fourth** an **inverted fifth**, it only makes the matter more complicated. To a large extent you are right. But if we harmonize the scale in inverted fifths rather than in fourths, then it sounds right. What we do now is to harmonize the scale with the note **a fourth below the scale note**. The interval in itself is a fourth, but in this function it is an inverted fifth.

I have written the **C-major scale harmonized in inverted fifths** as played vertically and horizontally.

The other **perfect intervals** are the **perfect unison** and the **perfect octave**. A unison is simply two of the same notes, so it is an interval where the distance is zero. The perfect octave is the distance from the bottom to the top of a scale, to where it starts all over again.

You should know how to play all the perfect intervals on your guitar, in all keys. Go to my **Navigating the Fretboard** series for material to practise.



**Introduction to Intervals:
The Perfect Fifth**

Inverted Intervals



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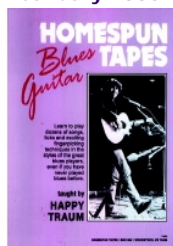
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Intervals - inversions



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The Thirds



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C-G:
G-C:

It should now come as no surprise that **the inversion of a perfect fourth is a perfect fifth.** Listen to the perfect fourth **C-F**, and it's inversion **F-C**. You can find both the **C-F** and the **F-C** written out in my **Ear training lessons**.

C-F:
F-C:

You might say: What is the point in this? If the inversion of a perfect fifth is a perfect fourth, why confuse the readers with many terms describing the same interval? To be honest, in my first draft of this lesson, that was almost what I was writing. But there is a point to it. When playing the major scale harmonized in fourths, I am sure you noticed that there was something wrong, particularly when harmonizing the root note. It simply would not rest with this fourth. An the reason is that the interval is **C-F**, or similar in other keys. It does not give us notes of the root chord. It gives us some kind of an **F-chord**, and we do not end on an F-chord when playing C-major.

If we make a change, and harmonize with the **fourth below the scale note**, it works better, particularly if you emphasize the top note (scale note) when playing. What you are doing now, is harmonizing in inverted fifths, rather than in fourths.

Play the major scale harmonized with inverted fifths in the following keys:

C-major F-major G-major D-major A-major E-major

I recommend that you learn this in all 12 keys, not just the 6 given here.



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The perfect fourth

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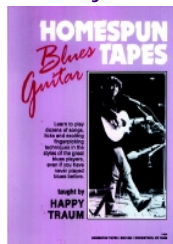
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Intervals - The Thirds



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There are **two main types of intervals**: **Consonant** and **dissonant**. Consonant intervals sound pleasant, or at least comfortable. Dissonant intervals sound unpleasant, uncomfortable and even aggressive. We will come back to the dissonant intervals in later lessons. The intervals we have covered so far - the perfect interval - are all consonant intervals. The other consonant intervals are **the thirds** and **the sixths**. In this lesson we will look at the thirds, and the sixths will be covered in the next lesson. You should be familiar with the counting and naming convention, and you should know that the third is the interval from 1st to 3rd note. And you should find the rest of the thirds by applying some very basic mathematics: If the distance from 1st to 3rd is a third, then the distance 2nd to 4th, 3rd to 5th etc, are thirds too. There are **two kinds of thirds**: **The major and minor third**.

The major third

The major third is **two whole steps above the root**, which equals four frets on your guitar. The interval between the 3rd and 2nd string is a major third. The first major third in the C-major scale is **C to E**.

Go to my [Ear Training Lesson](#) for examples of the **other major thirds in the C-major scale**: **F-A** and **G-B**.



The minor third

The minor third is **one whole and one half step above the root**. It makes no difference if it is first a whole and then a half, as in the interval D-F, or first a half and then a whole as in the interval E-G.

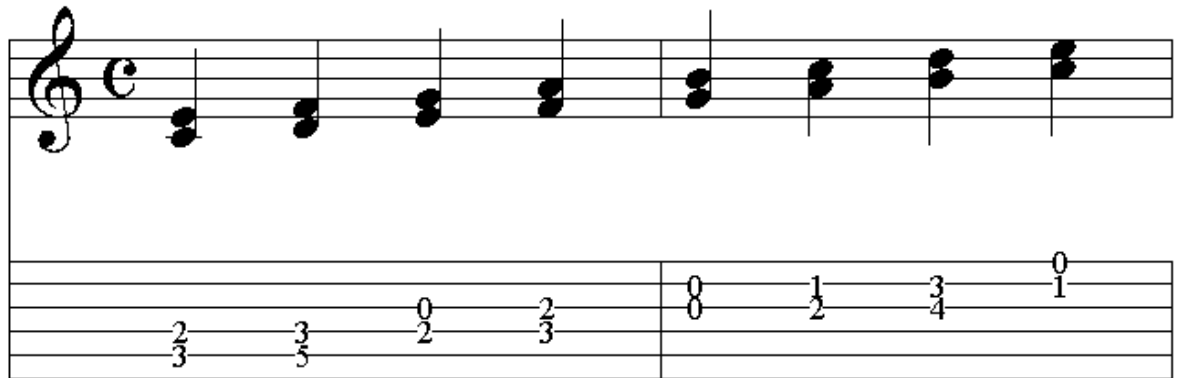
As long as we use the C-major scale as the basis, we will not find a minor third within the scale, starting at the root of the scale. The third up from the root (C) is a major third. We go up one step to D, and choose the minor third interval **D-F**.

Go to my [Ear Training Lesson](#) for examples of the **other minor thirds in the C-major scale**: **E-G**, **A-C** and **B-D**.



Notice the writing of thirds in standard notation. Both notes are either on lines, or in spaces between lines. There is no space between the notes, but they are not overlapping.

We will of course play our C-major scale harmonized in thirds. But notice that we alternate between major and minor thirds. Listen to the sound. You may try harmonizing in major thirds or minor thirds only, just to listen to the effect.



The first third of a scale determines major or minor

It is the first third of a scale that determines if it is major or minor. **If the first third is a major third, then the scale is a major scale. If the first third is a minor third, then the scale is a minor scale.** There are many different scales. But at least if we do not choose too exotic scales, this rule applies to all of them.

More on Thirds

- [Theory: Intervals - Thirds](#)
- [Intervals - Major Thirds, the Basic Shapes](#)
- [Intervals - Minor Thirds, the Basic Shapes](#)
- [Fretboard: Harmonized Scale, 3rd, Horizontal](#)
- [Fretboard: Harmonized Scale, 3rd, Vertical Part 1](#)
- [Fretboard: Harmonized Scale, 3rd, Vertical Part 2](#)
- [Guitar Scale Exercises in G-major, Box 1](#)
- [Guitar Scale Exercises in G-major, Box 1 - 4 notes, Thirds - Part 1](#)
- [Guitar Scale Exercises in G-major, Box 1 - 4 notes, Thirds - Part 2](#)



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[Intervals: The Sixths](#)





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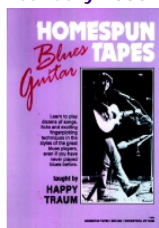
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Intervals - The Sixths



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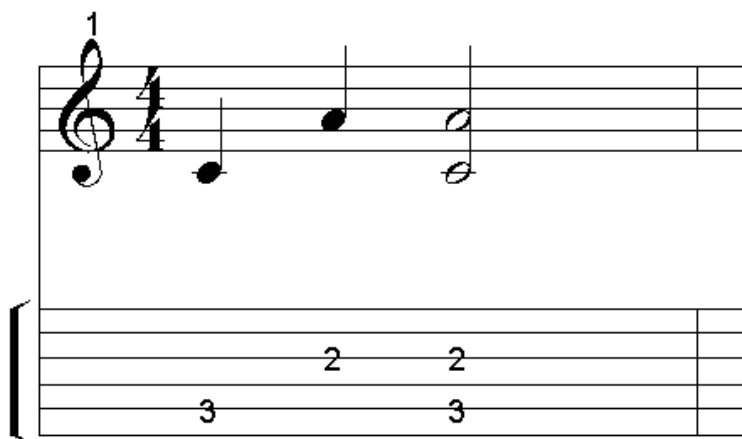


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The sixths are the last kind of the consonant intervals. The sixth is the interval between the first and the sixth note. As with the thirds, there are two kinds of sixths: **Major sixth and minor sixths**.

The major sixth

The major sixth is **four whole steps and one half step** above the root. I have chosen **C-A** as an example.



Go to my [Ear Training Lesson](#) for examples of the **other major sixths in the C-major scale: D-B, F-D and G-E**.

The minor sixth

The major sixth is **three whole steps and two half steps** above the root. The sixth above the root in a major scale is a major sixth. So once again we have to choose another root for the interval. I have chosen **E-C**.



Go to my [Ear Training Lesson](#) for examples of the **other minor sixths in the C-major scale: A-F and B-G**.

Notice the notation: If the root is on the line, then the sixth note is between the lines. Then you know that if the root is between the lines, the sixth is on the line. And there is two lines, and one and a half space between the notes.

Description of thirds and sixths

We will try to describe the thirds and sixths, just as we described the perfect intervals. They are pleasing, harmonious, friendly and cozy. Thirds are close friends, sixths are just friends.

When we harmonize the scale in sixths, you will have the same kind of problem as with the fourths: The scale will not come to rest. If we harmonize with inverted thirds (scale note on top), then it sounds better. So I give you both.

You should notice that a major sixth is an inverted minor third (and vice versa), and the minor sixth is an inverted major third. You will probably have some problem distinguishing between an interval and its inversion when played harmonically. The major third from C to E and the minor sixth from E to C have the same notes. But because the sixth is a much larger interval than the third, they are not as difficult as the perfect fifth and fourths.

You will often hear guitar solos harmonized in sixths. To me it sounds "countryish", but you will hear it in many musical genres. It is also much used in vocal harmony. Here are links to a few lessons on the net, for further studies (not all of them are free).

Mark Hanson: **Easy Blues: Soloing In Sixths** (True Fire - \$ 2.00)

Dave Rubin: **Double Play (Double-Stops)** (True Fire - \$ 1.50)

Joe Gore: **Sample Swatch Of Soukous** (True Fire - \$ 1.50)

Hellecasters: **Twisting Sixths** (True Fire - \$ 1.00)

John Petrucci: **Sliding Into The Future: Intervallic Slides (Wild Stringdom)** (True Fire - \$ 1.00)

Joe Dalton: **Country Lead** (True Fire - \$ 2.00)

Further references

A:GP 2003-04, L:AG 2002-Nov

GP= **Guitar Player** * TG=**Total Guitar** * GT=**Guitar Technique** * AG=**Acoustic Guitar** * FsG=**Fingerstyle Guitar** * G1=**GuitarOne** * GWA=**Guitar World Acoustic** * Gu=**Guitar** * Gst=**Guitarist** * HTPG=**How To Play Guitar**
I =Interview * F=Feature * A=Analysis * Ls=Analysis * C=Comment * Li=Licks * R=Review

For further practise yes, go to the **Navigating the fretboard** series.



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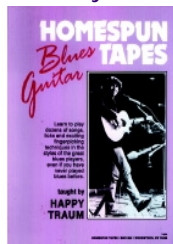
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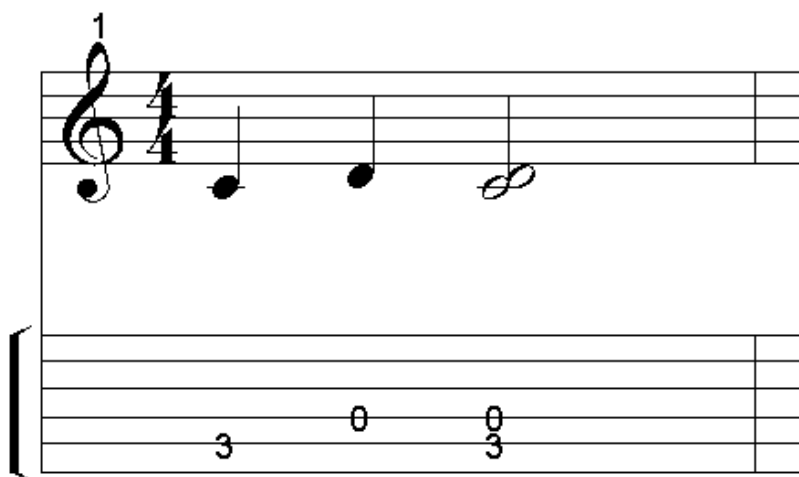


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The seconds are the first of the **dissonant intervals**. As said in the **lesson on thirds**, the dissonant intervals sound unpleasant, uncomfortable and even aggressive. The first interval we will tackle, is the second. There are **major and minor seconds**.

The major second

The major second is **one whole step** above the root. The interval chosen as an example, is **C-D**.



Go to my **Ear Training Lesson** for examples of the **other major seconds in the C-major scale: D-E, F-G, G-A and A-B**

The minor second

The minor second is **one half step** above the root. It is the most dissonant of all intervals. It sound like a siren. But as we will see later, they are very important intervals in a harmonic context. There are only two minor seconds in the major scale, and I have chosen **E-F** as an example.



Go to my [Ear Training Lesson](#) for the **the other minor second in the C-major scale: B-C.**

Notice that the notes of a second interval are overlapping in standard notation. One is on the line, the other in the space.

It does not make much sense to harmonize a scale in seconds. It will be too dissonant.

Further references

I: [GP 2002-04](#)

GP= [Guitar Player](#) * TG=[Total Guitar](#) * GT=[Guitar Technique](#) * AG=[Acoustic Guitar](#) * FsG=[Fingerstyle Guitar](#) *
 G1=[GuitarOne](#) * GWA=[Guitar World Acoustic](#) * Gu=[Guitar](#) * Gst=[Guitarist](#) * HTPG=[How To Play Guitar](#)
 I = [Interview](#) * F=[Feature](#) * A=[Analysis](#) * Ls=[Analysis](#) * C=[Comment](#) * Li=[Licks](#) * R=[Review](#)



**Intervals:
The Sixths**

**Intervals:
the Sevenths**



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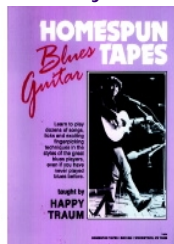
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Intervals - the Sevenths



Intervals:
the Seconds

Intervals - the Tritone or the
Diminished Fifth

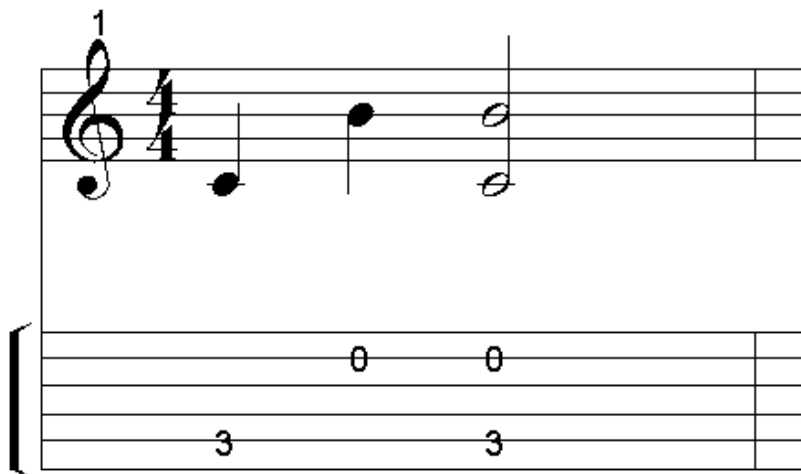


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The sevenths are the largest intervals within an octave. There are intervals that spans more than one octave, the **composite intervals**. But we will come back to these intervals later. Once again there are major and minor sevenths.

The major seventh

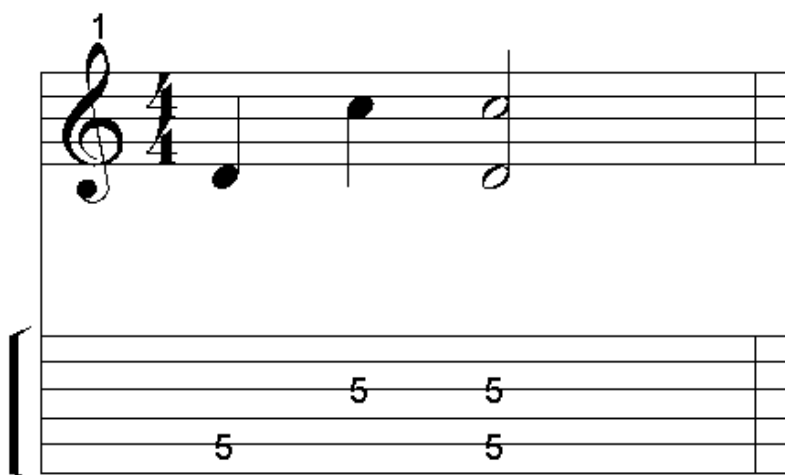
The major second is **five whole steps and a half step** above the root. There are only two major sevenths in a major scale. The example chosen is **C-B**.



Go to my [Ear Training Lesson](#) for the other major seventh in the C-major scale: **F-E**.

The minor seventh

The minor seventh is **four whole steps and two half steps** above the root. It is the dissonant intervals that is most used in chords, as it is a part of all **7-chords**



Go to my [Ear Training Lesson](#) for examples of the the other minor sevenths in the C-major scale: **E-**

D, G-F, A-G, B-A.

If we want to add to the description of the seconds and sevenths, we can say that both groups of intervals are aggressive. The seconds fight hand-to-hand, while the sevenths are shooting across the streets. The sevenths do not always sound that dissonant. Try this scale harmonized in 7ths.

T							
A	4	5	3	5	6	3	5
B	3	5	2	3	5	2	4



**Intervals:
the Seconds**

**Intervals - the Tritone or the
Diminished Fifth**



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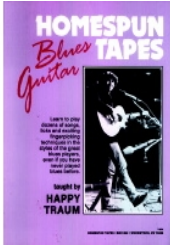
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Intervals - the Tritone or the Diminished Fifth



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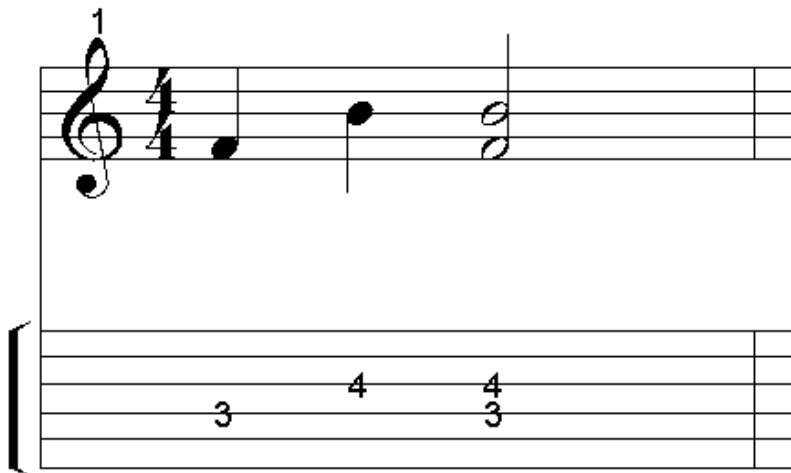
Intervals:
Summary of sounds



Books

The last interval we will cover in this first part on intervals, is the **Tritone**, or the **Diminished Fifth**.

The tritone is **three whole steps** above the root. It can also be labeled an **augmented fourth**, as it is a fourth with the fourth note raised a half step compared to the perfect fourth. The **Diminished Fifth** has **two whole steps and two half steps**. It is called **diminished** because the fifth is lowered a half step compared to the perfect fifth. One does not need an advance knowledge of mathematics to see that two whole steps and two half steps equals three whole steps. And that is why I have included them in the same example: The ear don't chop an interval into whole and half steps. And they sound the same. There is only one **tritone** in the C-major scale: **F-B**.



Go to my **Ear Training Lesson** for the **the diminished fifth in the C-major scale: B-F**

Notice that the tritone is **F-B**, and the diminished fifth is **B-F**, and remember that the distance between the notes in a tritone and a diminished fifth is the same. **The Tritone / Diminished fifth divides the scale into two equal parts**. You should also notice that both F and B are included in a **G7 chord**, and as we will see later: These are the two most important notes in this chord.

The Tritone in the V7-I change

The tritone / diminished fifth is a dissonant interval. But does not sound unfriendly or aggressive. But they are not comfortable either. They sound vague, restless and homeless, and they ask to be resolved and taken home. That is why it is so important as part of the **G7-chord**. It creates a tension that is resolved when going to the root chord, C-major. Listen to the example given to the right, where the **B goes up to C** and the **F goes down to E**. These two minor second movements, one up and one down, is really what creates the **V7-I** change. We will come back to this in a **later lesson**.



For more on tritones and the diminished chord, go to:

- Theory: Tritone interval
- Theory: The diminished triad
- Theory: The dominant 7th chord
- Chords: dim chords

- Chords: Dim7 chords
- Progressions: Chord - diminished
- Progressions: V7-I change

- Tritone Blues - Part 1 * Part 2 * Part 3 * Part 4
- Blues Gutiar: 12-bars, Two Chord Shapes and a Touch of Jazz - Part 1 * Part 2 * Part 3 * Part 4
- Blues Guitar: The Flat-five Substitution – Part 1 * Part 2 * Part 3 * Part 4 * Part 5 * Part 6 * Part 7
- The same in Theory: The Flat-five Substitution
- Song: The Beatles' song **Michelle**



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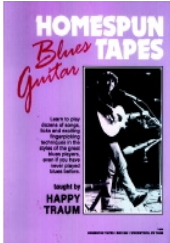
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Intervals - a summary of inversions



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You should know by now what we mean by inversions. This is just a summary with sounds.

If we move the root of the fifth interval **C-G** up one octave, we get **G-C**. But the **G-C** is a fourth. And this is what you should know: **The inversion of a perfect fifth is a perfect fourth.** Listen to the two intervals. I do not write the examples. You need to take another look, you can either go back, or go to **C-G** and **G-C** in my **Ear training lessons**. If you have found it difficult to distinguish between perfect fifths and perfect fourths, this is the reason: **The same two notes can give both a perfect fifth and a perfect fourth.**

It should now come as no surprise that **the inversion of a perfect fourth is a perfect fifth.** Listen to the perfect fourth **C-F**, and it's inversion **F-C**. You can find both the **C-F** and the **F-C** written out in my **Ear training lessons**.

The inversion of a major third is a minor sixth. This is the reason why one often tend to mix major thirds and minor sixths. I have chosen **C-E** and **E-C**Go to my **Ear training lessons** for **C-E** and **E-C** in writing.

We start from the other end, and **the inversion of a minor sixth is a major third.** As you remember, there is no minor sixth starting from the root of a major scale, so I have chosen **A-F** and **F-A** as example. The other possible example is the **E-C** and **C-E** used in the previous row. Go to my **Ear training lessons** for **F-A** and **A-F** in writing.

The inversion of a minor third is a major sixth. Once again we cannot start from the root of the major scale, so I have chosen **D-F** and **F-D**. Go to my **Ear training lessons** for **D-F** and **F-D** in writing.

The inversion of a major sixth is a minor third. I have chosen **C-A** and **A-C**. Go to my **Ear training lessons** for **C-A** and **A-C** in writing.

C-G:



G-C:



C-F:



F-C:



C-E:



E-C:



A-F:



F-A:



D-F:



F-D:



C-A:



A-C:



<p>The inversion of a major second is a minor seventh. I have chosen C-D and D-C. Go to my Ear training lessons for C-D and D-C in writing.</p>	C-D: 
	D-C: 
<p>And the inversion of a minor seventh is a major second. I have chosen the G-F and F-G this time, since this is the 7th heard in the G7 chord. Go to my Ear training lessons for G-F and F-G in writing.</p>	G-F: 
	F-G: 
<p>The inversion of a minor second is a major seventh. This time I have chosen E-F and F-E. Go to my Ear training lessons for E-F and F-E in writing.</p>	E-F: 
	F-E: 
<p>And the inversion of a major seventh is a minor second. The obvious choice is C-B and B-C. One way to identify a major second is to think of it as an octave minus a minor second. It is easier to identify the minor second, so this might help in identifying the major seventh. Go to my Ear training lessons for C-G and B-C in writing.</p>	C-B: 
	B-C: 
<p>The inversion of Tritone is a Diminished fifth. But as they sound the same, the concept of inversion is not very interesting for these intervals. But you can of course listen to the intervals F-B and B-F. And you can of course go to my Ear training lessons for F-B and B-F.</p>	F-B: 
	B-F: 



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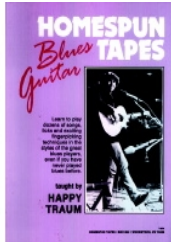
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Intervals - Summary of sounds



Intervals - a summary of inversions

From
intervals to
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major and
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This is the last summary of the basic intervals. These are all the intervals from unison to octave, with the same root. This means that not all intervals belongs to the same key, so now they are presented without the context of one scale. You get the in three versions, with **C**, **F** and **G** as roots.

A sound summary of all intervals

C as root

Perfect unison C-C: 	Minor second C-Db: 	Major second C-D: 	Minor third C-Eb: 	Major third C-E: 	Perfect Fourth C-F: 	Tritone / Diminished Fifth C-F# / C-Gb:
Perfect Fifth C-G: 	Minor sixth C-Ab: 	Major sixth C-A: 	Minor Seventh C-Bb: 	Major Seventh C-B: 	Perfect Octave C-c': 	

G as root

Perfect Unison G-G: 	Minor Second - G-Ab: 	Major Second G-A: 	Minor Third G-Bb: 	Major Third G-B: 	Perfect Fourth G-C: 	Tritone / Diminished Fifth G-C# / G-Db:
Perfect Fifth G-D: 	Minor Sixth - G-Eb: 	Major Sixth G-E: 	Minor Seventh G-F: 	Major Seventh G-F#: 	Perfect Octave - G-g': 	

F as root

Perfect Unison F-F: 	Minor Second - F-Gb: 	Major Second F-G: 	Minor Third F-Ab: 	Major Third F-A: 	Perfect Fourth F-Bb: 	Tritone / Diminished Fifth F-B / F-Cb:
Perfect Fifth F-C: 	Minor Sixth - F-Db: 	Major Sixth F-D: 	Minor Seventh F-Eb: 	Major Seventh F-E: 	Perfect Octave - F-f': 	



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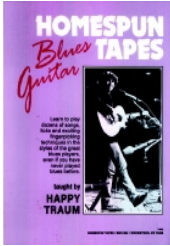
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From intervals to chords - major and minor triads



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a summary of inversions

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Intervals are two notes. Chords are by definition three or more notes. As for all such definitions, it is not without exceptions. But we will come back to that. We will start with the two main three notes chords - **The major and minor triads**.

The major chord

As a point of departure, we will go back to the **Perfect Fifth**. It is the strongest interval - after the unison and octave. But it is empty sounding, static and not very interesting. What we do is to **add a note that divides it into two halves**. The "problem" is: The perfect fifth spans 7 half notes, and as long as we do not use micro tones, it must be a 4+3 or 3+4 division. We start with the 4+3, meaning that we have 4 halves = 2 whole notes, and then One and a half. We start with the perfect fifth **C-G**, and add the note **a major third (two whole notes) above the root**. Listen to the example to hear how the character changes by adding the **E**. I will say that it is starting to get character. We have a **major third and then a minor third, which adds up two a perfect fifth**. What you get is the **C-major chord in root position**.

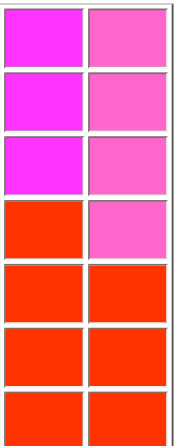


You can cross over to my **Harmonized Fingerboard lesson** for fingerings of the basic major triad in root position.

The minor chord

We can try the other alternative: **First a minor third, and then a major thirds, which still adds up to a perfect fifth**. Now we have a **C-minor chord**.

If we compare the major in minor chords as a kind of diagrams, it will be like the diagram to the far right, where each block is a half step. The major chord is a stack with two whole steps (a major third), and then one and a half step (a minor third) on top of it. The minor chord has a minor third and then a major third.



		Major
		Minor

You can cross over to my [Harmonized Fingerboard lesson](#) for fingerings of the basic minor triad in root position.

You should know the function of the notes in the chords, as this knowledge is important when you change the voicings, extend or alter the chords. In a triad, **the root gives the identity, the third gives the character and the fifth gives stability.**

If you listen to the example, you will hear the **perfect fifth C-G**, which changes to a **C-major**, to **C-minor** and then back to the **Perfect fifth**.

It is the first third up from the root that determine if it is a major or minor chord. If it is a major third, then it is a major chord. If it is a minor third, then it is a minor chord.



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Major
Minor
Dim

[illegible]

	<div></div> <div>Major</div>	<div></div> <div>Minor</div>	<div></div> <div>Aug</div>
---	-------------------------------------	-------------------------------------	-----------------------------------

In the example, I have given a major and then an augmented C chord. The aug chord is usually notated as **Caug** or **C+**

For more on tritones and the diminished chord, go to:

- | | | |
|--|--|--|
| <ul style="list-style-type: none"> • Theory: Tritone interval • Theory: The diminished triad • Theory: The dominant 7th chord • Chords: dim chords | <ul style="list-style-type: none"> • Chords: Dim7 chords • Progressions: Chord - diminished • Progressions: V7-I change | <ul style="list-style-type: none"> • Tritone Blues - Part 1 * Part 2 * Part 3 * Part 4 • Blues Guitar: 12-bars, Two Chord Shapes and a Touch of Jazz - Part 1 * Part 2 * Part 3 * Part 4 • Blues Guitar: The Flat-five Substitution – Part 1 * Part 2 * Part 3 * Part 4 * Part 5 * Part 6 * Part 7 • The same in Theory: The Flat-five Substitution • Song: The Beatles' song Michelle |
|--|--|--|

For more on the augmented triad and related chords, go to:

- | | | |
|--|---|---|
| <ul style="list-style-type: none"> • Chords: Augmented chord • Chords: mM7 chord | <ul style="list-style-type: none"> • Theory: Diminished and augmented triads • Progressions: The Minor Walk | <ul style="list-style-type: none"> • Song: The Beatles' song Michelle |
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Now that you know the basic intervals and the construction of the basic chords, you should cross over to my lesson on **The Harmonized scale**.



From intervals to chords - major and minor triads

The sus4 chord



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The sus4 chord



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The suspended 4th (sus4) chord

The **sus4** is the third common triad with a **perfect fifth**. Here we have a perfect fourth, and not a third. Since there is not third, then the chord is neither major nor minor. To be honest, I cannot tell you why the chord is called a **suspended** fourth. But at least I know the notes of a chord with this name..

It does not really fit into the harmonized scale. But it does not fit very well into any of the other parts of this series either, so I decided to include it at the end of the part with the other chords with a perfect fifth.

In the example, there is a **Major**, a **Sus 4**, a **Minor** and another **Sus 4** chord.

Sus4	Major	Minor		

The suspended 2th (sus2) chord

This is almost as common as the **sus4**, and they are often played in the same sequence. The **sus4** is a **fourth and a second**, while the **sus2** is a **second and a fourth**. I have just added it to the color coded diagram.

In the example, there is a **Major**, a **Sus 2**, a **Minor** and another **Sus 2** chord.

Sus4	Major	Minor	sus2		

In this last example I have made a walk down from the 4th to the 2nd, by playing (or rather entering ...) the Csus4 - C - Cm and Csus2 chords.

	Csus4	C	Cm	Csus2
T	0	0	0	0
A	3	2	1	0
B	3	3	3	3

Sus4	Major	Minor	sus2

The chord **Csus2** has the notes **C-D-G**. If we look at the **Gsus4**, this chord has the notes **G-C-D**. So you see that there is a strong relation between these chords. A **sus2 in second inversion** = **sus4 built on the fifth**. If we go the other way, we see that the **sus4 in first inversion** = **sus2 built on the fourth**.

For more on the sus2 and sus4 chords, go to:

- | | |
|--|--|
| <ul style="list-style-type: none"> • Chords: sus2 chord • Chords: sus4 chord | <ul style="list-style-type: none"> • Theory: The sus4 and sus2 chord • Progressions: Sus2 and sus4 chords (work in progress) |
|--|--|



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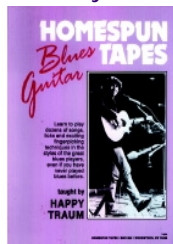
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Chord inversions



The sus4 chord

Doubling of notes in chords



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Chords can be inverted, just as intervals. But an inverted chord is still the same chord. When inverting a Perfect Fifth, we get at Perfect Fourth, and it usually does not make sense to call the Perfect Fourth a "Perfect Fifth in First Inversion". But a chord with the notes **C-E-G** is a **C-major**, no matter how we change the sequence of the notes.

So far, we have dealt with chords in **root position**. This means that we build the chords up from the root note and the root is the bottom note of the chord. A chord in root position has a **1-3-5 voicing**. When starting from the root position, we can move the root up one octave. We then get at a chord with the **third in the bottom, fifth in the middle and root on top**. This is called the **first inversion**. The first inversion has a **3-5-1 voicing**.

Notice the intervals in the chord. The first interval, from **E to G** in a C-major chord, is a **minor third**. I find the sound of the first inversion of the major chord slightly more "minorish" compared to the chord in root position, because of this minor third interval at the bottom. The second interval, from **G to C** is a **perfect fourth**. You hear some kind of a resolution when going from the fifth up to the root. This gives the chord in first inversion some concluding quality, but not as strong as the same chord in root position. The **outer interval**, from bottom to top in the chord, or from **E to C** is a **minor sixth**.

Notice that there is no fifth interval in the chord, even though the fifth note is present. The fourth from G to C is an **inverted fifth**, but it is not as strong and stable as a perfect fifth. As said in lesson xx, **the fifth gives the chord stability**. The lack of a proper fifth makes the first inversion less stable compared to the chord in its root position.

I said that I find the sound of the major chord in first inversion a bit "minorish". But at the same time the third in the bottom emphasizes the major character. The top note in a voicing will always be a prominent note in the overall sound. As the top note is the root, it still has a quite clear identity.

Do as we did with the triad in root position, and find the first inversion of the C-major triad in all positions on your guitar.

We can do the same kind of movement once more, and now move the bottom note of the first inversion one octave up. Now we have a chord with a **5-1-3 voicing**, which is the **second inversion** of the chord. But if we do one more of the same kind of movement, with end up in root position again, one octave higher from where we started.

You can of course go the other way: Move the top note of the root position down an octave, which gives the **second inversion**, and if you move the top note of the second inversion down one octave, you get the **first inversion**.

First you should notice that the chord in second inversion has the root as the middle note, which is the least prominent note in a three note chord. This will give the chord a weaker identity compared to root position and first inversion. As we will see xx, the chord does not have a concluding quality.

The chord starts with a **perfect fourth from G to C**. Even though the interval in itself has a concluding quality, it does not come through in the second inversion. It sounds more as a pick up note, and you will find many songs with a melody starting with the notes of a major chord in second inversion. The second interval is a **major third from C to E**. With the characterizing note of the chord in the prominent top position, it gives the chord a clear major character. I think this is another reason why so many songs start with the chord in second inversion: It gives a clear statement of the major tonality at the very beginning of the song.

The outer interval, from **G to E** is a **major sixth**. Again there is no perfect fifth in the chord, and as the inverted fifth is in the bottom leading up to the middle note, the second inversion is the least stable of the three voicings of the major triad. You expect more when you hear the chord. It works very good as an opening, but is not really able to conclude a song.

Again, play second inversion of a C-major chord in all positions on the guitar.

There are many reasons for choosing various inversions of a chord. One obvious reason is that it makes smooth chord changes easier. But this usually also mean smoother voice leading, which again mean smoother and more subtle harmonic changes.

Another reason is melody. The melody will often (but not always) be on the top string in the chord. To keep the melody going, we have to choose a voicing that has the melody note on the top string. One very simple example is this example based on a few bars from **Three Blind Mice** (it is just the beginning and the end put together), where we in the first example only concentrate on keeping the melody on top of triad voicings. We play **D₂**, **A_R** and **D₁**, then **A₁**, **G₁** and **D₂**, before the first three chords are repeated (the subscript number/letter indicate the inversion).

Some times you want to keep the chord while the melody is changing. You can find one example in the arrangement of **Come Back Baby**, that is included in my **Blues Guitar Lessons**. It has an **A7** played with the **Moveable D7 shape** in 8th and 9th fret, with the melody on 1st. string, 9th fret. Then it changes to **A7** in the **Long-A position**, while the melody goes 5th and then 3rd fret on 1st string.

You may also want to have changing harmony under a melody that is not moving. One example is **John Mayers' Cavatina**. And then you might have two lines with a counter point movement, and a changing harmony. The opening of **Led Zeppelin's Stairway To Heaven** is one good example.

Listen to the **quality** or the **sound color** of the different inversion. The strongest note is the bottom note. This mean that a chord is more stable when played in **root position**. Then there is the top. And since the root is on the top in **first inversion**, it still has some stability. The **second inversion**, with the 5th in the bottom and the third on top, and the root somewhat hidden in the middle, is the least stable of the three. The 5th in the bottom have some of the effect of the **turnaround chord** in a typical blues progression.

Play the following three versions of the ending of **Three Blind Mice**, and listen carefully at the ending chord. The first ends on **first inversion of the D-chord**. It works, and you can end on this chord. But it is not a very firm and solid ending. The next is **second inversion** (but with a doubled D, to keep the melody right). You feel that you are not at home, and cannot end there. The final chord is in **root position**, and you really feel that you have returned home when you end on this chord.



The sus4 chord

Doubling of notes in chords



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Doubling of notes in chords



Chord inversions

The primary chords



Books

You will probably have asked many times why I am using only three-note chords, as long as you often play chords on all six strings on the guitar. Still there are only three notes in a basic major or minor chord, but notes may be repeated an octave above (or below). In the standard **E-major chord** the root (E) is played three times (6th, 4th and 1st string), the third (G#) is played once (3rd string) and the fifth (B) is played twice (5th and 2nd string). But still there is only E, G# and B. If you look at other standard chord shapes, you will find that notes are often doubled or even tripled.

The answer to the question why I use only three note chords, is that these basic three note voicings is better at showing the relations between the notes. And you will see that they are building blocks you can use to create fuller sounding chord voicings with one or more notes doubled.

Then the next question is: Which notes to double, and which notes - if any - should not be doubled. The general answer is that what sounds right is right. There are no clearly defined and absolute rules saying what to do and what not to do. But there are a few guidelines.

As you remember, the **root** gives the chord identity. It can be reinforced by doubling the root. The root can (almost) always be doubled with a good result. In the E-chord used as an example, the root is tripled, with good result.

The **fifth** gives stability, and is another good candidate for doubling. In our E-chord, the fifth is doubled.

The **third** gives character. We want the note to have character, but it should not be exaggerated. One third will often be enough. It is like salt and pepper in your food. Without it, the food does not really taste much. But too much will destroy the meal. Try to fret the 1st string on 4th fret when playing the E-chord, and listen to the difference.

This is of course not a rule without exceptions. If you write or arrange music for a large orchestra, you may have many thirds. And there are chord-voicings frequently used on the guitar that have more than one third. One example is the basic open voicing of the **G-major** chord. Look at the **different voicings** and listen carefully to the sound. I tend to like the sound of the 1-3-5-1-5-1 voicing (with D on 2nd string 3rd fret) better than the 1-3-5-1-3-1 voicing (B open 2nd string). It is of course a matter of taste, and I am not saying that I do not use the 1-3-5-1-3-1 voicing. It depends on the context. Sometimes it gives a better voice leading, for instance to and from the **C**-chord, and in some playing situations it does not really matter that much. For simple chord strumming, chord voicings are not that important.

Another chord worth looking at is the standard **C**-chord. One will usually play it as a 5-string chord, and not play the 6th string, even though the E is a chord note. But you already have two thirds (E) in the chord - on 3rd and 1st string - and a third third will be too much. You get another voicing of the chord with the 5th doubled instead of the 3rd by fretting the 1st string 3rd fret with your 4th finger.

Next question: What about inversions when notes are doubled? The inversions will not be as clear as with the basic three note chords. But the inversion will be defined by the bottom note. If the root is at the bottom, then the chord is played in root position. A third in the bottom mean first inversion, and a fifth mean second inversion.



Chord inversions

The primary chords



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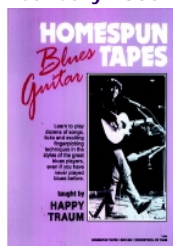
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The primary chords



[Doubling of notes in chords](#)

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In a song based on a major scale, there are three major chords known as **primary chords**. The system of primary chords was formulated by the French composer **Jean Phillippe Rameu** in the 18th century, in his book **Treatise on Harmony** (of course it was originally written in French, but I do not know the French title).

The first is the triad built on the root or tonic note, and it is called the **root** or the **tonic** chord. The next is the chord built on the **fifth note**, called the **dominant chord**. To be honest, I do not know why it is called dominant. The third chord is built on the fourth note, and is called the **subdominant**. It is called so not because it is a subordinate chord, but because it is the note a fifth below the root or the tonic note. In the key of C, these chords are C, G and F.

We often refer to them with roman numbers, indicating the which note in the scale they are built on. A chord built on the first note (root or tonic) is **I**, the chord built on the fourth note is **IV** and the chord built on the fifth note is **V**. The advantage of this notation is that it can be applied to any key.

We will stay in the key of C for a while. You probably remember that the notes in the C-major scale is **C, D, E, F, G, A** and **B**. If you look at the notes in the three primary chords, you will find that **C-major** has the notes **C-E-G**, **F-major** has **F-A-C** and **G-major** has **G-B-D**. Every note of the scale is part of at least one of the primary chords.

C-major			C	E	G
F-major	F	A	C		
G-major	G	B	D		
C-major		C	E	G	
F-major			F	A	C
C-major	C	E	G		
G-major			G	B	D
F-major	F	A	C		
G-major	G	B	D		

You can harmonize every note in the major scale by using the three primary chords. I am not saying that it will always sound good or interesting. But it will not clash, and will never be totally wrong. Some composers have created masterpieces with only these three chords, and less talented guitar players use them for the **"three chords trick"**, playing almost any song with only these three chords. For a more in depth discussion on how a pop-song can be harmonized with these three chords, go to **Ger Tillekens: The amazing grace of "Never Ever"** in **Soundscapes on-line journal on media culture**.

The Three-Chord Trick: I-IV-V progressions

- [Progressions: The Three-chord Trick: I-IV-V progression](#)

- [Theory: The primary chords](#)



[Doubling of notes in chords](#)

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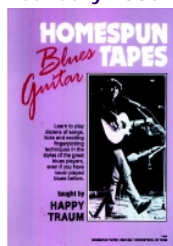
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Voice leading



The primary chords

The authentic cadence:
V-I change



Books

If you play all chords in the same inversion, all the notes in the chord have to move up or down a rather large interval if you Chaney from I to IV, I to V or back to I. The interval will be the same whether you play horizontally or vertically on your guitar. It does not sound very good if all the notes move up or down a perfect fourth or fifth.

You should think of the three (or more) notes of a chords as different voices. You could think of them as different instruments or different singers in a trio. Each voice play their own melody, and the melody voices add up to the harmony. The way the different voices move is what is called voice leading. If a melody move from one note to the one next to it, it is called a *conjunct move*. If it moves a third or more, it is called a *disjunct move*. Generally conjunct moves will sound better - but the music will be boring if you play conjunct moves only. If you play the chords in different inversions, you can get smaller intervals and better *voice leading*. We can look at a few examples.

<p>In the first example we can go from C-major in root position to F-major in second inversion. The bottom note is C in both chords, and does not move. The function of the note changes from the root of the C-chord to the fifth of the F-chord, but it is still a C.</p> <p>The E moves up just one half step to F, and the G move up one step to A.</p> <p>Play it in reverse, going from F to C. Listen carefully to the half step move from F to E. It is as if the F wants to go to E. The F - the 4th note - is called the <i>leaning note</i>, as it is leaning towards the third.</p>	C-major Root position	F-major 2. inversion
	G	- A
	E	- F
	C	= C

<p>The next example also starts from C-major in root position, but now we go to G-major in first inversion. The G is a common note between the C and the G chord, and can stay in the same position. It is the fifth of the C and the root of the G.</p> <p>Now the E goes down to D and the C goes down to B.</p> <p>Play this in reverse too, and listen to the half step move from B to C. It is as if the B wants to go home to C. The B - the 7th note - is the <i>leading note</i> of the scale, leading up to the tonic (root).</p>	C-major Root pos	G-major 1. inv
	G	= G
	E	- D
	C	- B



Do the same with other combinations of chords and iversions, and play them in different positions on the fingerboard. Listen carefully to the sound of each chord sequence.



The primary chords

The authentic cadence:
V-I change





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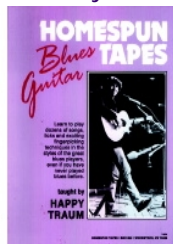
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The authentic cadence - V-I change



Voice leading

Plagal Cadence:
The IV-I ending



Books

The 5th note of the scale is an unstable note. It want to move somewhere. When acting as a fifth in a chord, it is stable, particularly in the root or tonic chord. But on it's own, or as root of the V chord, it is a restless friend. It want to go to the tonic, either up a fourth or down a fifth. Play the C-major scale from C to G, and then pause. This is not the place you want to stay. Add the C either up or down, and the music settles down.

This concluding power of the **G-C** move in the C-major scale, can be reinforced by the chords **G-major** and **C-major**, acting as V and I in the key of C-major. Play the the chords **C-G-C**, and listen to how the **G-C** change concludes the passage. The V-I is probably the most common ending in music, so I am sure you know many songs with this concluding device. This is what is known as the *authentic cadence*. When you end a musical statement with this cadence, it is called a *full close*.

You can of course just strum the chords. But you should look at and listen to possible voice leadings from **G** to **C**. Play **G** in first inversion and **C** in root position, and you will get a nice and smooth change.

The two chords has the note G as a common note. When you want to conclude, the I chord should take the command. And as you remember, you get the strongest concluding statement if you end on the I chord in root position. **G** is on the top of **C** in root position, and then it should have the same position in the G-chord. The middle note go from D up to E, which is a conjunct move. The bottom note goes from the leading note B to the tonic C. Everything is nice and smooth.

G	C
G	= G
D	- E
B	- C

There are many ways leading up to the V-chord. But we can start is simple, with just the I and the V chord. You might make a short shift from I to V and back, just to underscore the ending.

You can start with the reverse statement, from I to V. If a statement end with a V-chord, the music might take a break, but expect something more. This is called a *half close*. A very simple song structure has two lines. The first starting on I and ending on V. The second line starts with the V-chord, and ends on I. The song *Tom Dooley*, a song many guitar players learned as their first song, has this structure.

There are thousands of songs that end with a V-I cadence, but usually you will play a few other chords before coming to the cadence.

Click here for a list of songs with xxx



Voice leading

Plagal Cadence:
The IV-I ending



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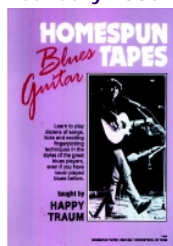
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Plagal Cadence: The IV-I ending



The authentic cadence:
V-I change

The dominant 7th chord and
the power of the tritone



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Another common ending is the IV-I change, known as the *plagal cadence*. In C-major it will be **F-C**. It has a more xx sound, and has often been chosen as ending for hymns. This is why it is also known as the *amen cadence*.

The IV-I change does not have the 5-1 step, as we remember have a strong concluding power. It also lack the leading note - tonic (7-1) move, another strong concluding statement. This time we can choose the IV chord in second inversion and the C in root position, for a good voice leading.

The two chords has the note C as a common note. It is the fifth of the F-major and root of C-major. As top note, the F-chord has an A, that moves down one step to G. The F to E move is a move from the <i>leaning note</i> down to the third of the tonic chord. This move has some concluding power, but not as strong as the G-C or B-C move that we have in the G-C change.	F -major 2.inv		C -major
	A	-	G
	F	-	E
	C	=	C

As with the **authentic V-I cadence**, we may have a full and a half close. Some songs has only the I and IV chord. One example is ***Rolling Stones' Satisfaction***, a song that rather contradict the notion that this ending is mainly used for hymns.

Click here for a list of songs with xxx

More on the application of the IV chord

- Progressions: The double message of the I-IV change
- Theory: Plagal Cadence: The IV-I ending
- Progressions: Intro - a start from the subdominant



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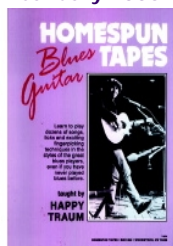
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The dominant 7th chord and the power of the tritone



Plagal Cadence:
The IV-I ending

Secondary chords



Books

You have probably already asked why I have been referring to the V chord, and not the V7 chord. If you play in C, you will often prefer **G7** over the **G** chord. The reason was of course to start simple.

Now it is time to introduce the first member of a new family of chords - the 7ths. The 7th chords has one note added to the basic triad, meaning that they are all four-note chords. You can view the 7th chord either as extensions of the triads, with one more third added, or as a chord with a 7th note added. The result is the same, and both views might be useful.

The first 7th chord has a minor third added to the major triad, or a minor 7th added to the chord. When we use the term "7th" with no further qualification, we mean a major chord with a minor seventh, opposed to minor chords with added sevenths (m7) or major chords with a major seventh (maj7). We will discuss the other 7th chords later.

The chord is often called the **dominant 7th** because it is built on the dominant. By this term we are referring both to the type of chord and to the function of a chord in a harmonic context. As a diatonic chord in a major key, the 7th can only be found in this position. All other diatonic 7th chords will be other kinds of 7ths. But if you use the 7th in another harmonic context, for instance as a IV7 chord in a 12-bar blues progression, it does not function as a dominant chord. In the key of C-major, the dominant 7th chord is **G7**. Now we have to be sure that we do not mix the different terms we will use. The chord is built on the fifth or dominant of the C-major scale. C is the root of the scale. But if we look at the chord, the first note - G - is the root of the chord. If we count from the root of the chord, a 7th chord in root position will have the notes 1-3-5-7. What kind of 3rd, 5th and 7th will depend on which scale note the chord is built on. If we count the scale notes, with 1 as the root of the scale, then a 7th chord built on the fifth note will have the scale notes 5-7-2(9)-4(11). If the key is C then the dominant 7th **G7 will have the notes G-B-D-F**.

If we analyze the structure of the chord, we find that the first three notes form a basic major triad: G-B-D, with a major 3rd from G to B, a minor 3rd from B to D and a perfect fifth from G to D. Nothing is new so far. From D to F is another minor 3rd. The interval from G to F, the **minor 7th** is new. It is a **dissonant interval**, which makes the 7th chord a dissonant chord. It is restless, and wants to move on. But what really gives the dominant 7th chord it's power is the interval from B to F - the 3rd and 7th of the chord, or it's inversion F to B. This is a **tritone**. If we count from B to F it is a **diminished fifth**, and from F to B is an **augmented fourth**. The interval might be spelled different, but it is still 6 half steps. Our ear listen to the sound, it does not count whole and half steps. If it is three whole steps (augmented fourth) or two whole steps and two half steps (diminished fifth) does not matter.

To get the effect of the tritone, play only the interval **B - F**, listen to it's restless sound, and then play **C-E**. The tension created by the tritone resolves, and the sound is put to rest. When we were discussing basic chord substitution, I said that the root and the 3rd were the most important notes to maintain in the new chord. Not so with the dominant 7th. The important notes to keep is the 3rd and the 7th, the notes that create the tritone. If you want to substitute the dominant 7th with a chord that has the same effect, it should be substituted by a chord that has the same tritone interval.

The **voice leading** when going from a **G7 1. inversion** to **C root position** might seem a bit tricky, because we are going from a 4-note to a 3-note chord. G stays where it is. F goes to E, D goes nowhere, and B goes to C.

G7		C
G	=	G
F	-	E
D		
B	-	C

So far our harmonies have been supportive, but they have been of the accepting kind. They do not clash with the music, but they don't move it either. The dominant 7th drives the music forward. It creates tension and demands resolution.

More on the V and V7-Chord (dominant)

- [Theory/Progressions: The V-Chord](#)

- [Progressions: I-V-I progression](#)

- [Theory: The dominant 7th chord and the power of the tritone](#)

For more on tritones and the diminished chord, go to:

- [Theory: Tritone interval](#)
- [Theory: The diminished triad](#)
- [Theory: The dominant 7th chord](#)
- [Chords: dim chords](#)

- [Chords: Dim7 chords](#)
- [Progressions: Chord - diminished](#)
- [Progressions: V7-I change](#)

- [Tritone Blues - Part 1 * Part 2 * Part 3 * Part 4](#)
- [Blues Gutiar: 12-bars, Two Chord Shapes and a Touch of Jazz - Part 1 * Part 2 * Part 3 * Part 4](#)
- [Blues Guitar: The Flat-five Substitution – Part 1 * Part 2 * Part 3 * Part 4 * Part 5 * Part 6 * Part 7](#)
- [The same in Theory: The Flat-five Substitution](#)
- [Song: The Beatles' song **Michelle**](#)



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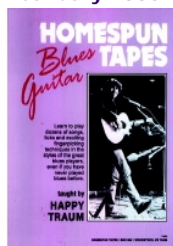
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Secondary chords



The dominant 7th chord and the power of the tritone

The harmonized scale



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When there are primary chords, it should come as no surprise that we also have *secondary chords*. These are the chords built on the 2nd note (supertonic), the 3rd note (mediant) and the 6th note (submediant). You will notice that the 7th note is still left out.

In C-major, these notes are D, E and A. If we build diatonic triads - triads constructed with notes from the scale - we go a third up from D, which is F, and another third up from F which will take us to A. This means that the chord on the 2nd note is D-F-A. The chord on the E will be E-G-B and the chord on A will be A-C-E. You should notice that the intervals from D to F, E to G and A to C are all *minor thirds*, which mean that these chords are all *minor chords*. For the major scale, we have now expanded our harmonic vocabulary from three to six chords, three primary chords which are all major, and three secondary chords which are all minor. Now every note of the scale can be harmonized with at least two chords:

C-major					
F-major		A	C	E	G
A-minor	F	A	C		
D-minor			D	F	A
G-major	G	B	D		
E-minor			E	G	B
C-major		C	E	G	
A-minor	A	C	E		
F-major			F	A	C
D-minor	D		F	A	
G-major			G	B	D
C-major	C	E	G	B	
E-minor		E	G	B	
A-minor			A	C	E
F-major	F	A	C		
D-minor	D	F	A		
G-major		G	B	D	
E-minor	E	G	B		

When we introduce more chords, it is time to remind ourselves that there is no point in using as many chords as possible. Sometimes new chords add color and character, but sometimes "less is more", and extra chords will only sound clever and pretentious. Taste is also about not overdoing, a principle that applies to harmony as to most other aspects of life.



The dominant 7th chord and the power of the tritone

The harmonized scale



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The harmonized scale


[Secondary chords](#)
[Minor chord inversions](#)


Books

For more general information on the construction of the harmonized scale, go to the [Harmonized Scale Lesson](#).

[Index to harmonized scales](#)

A harmonized scale means a scale where you have built a chord on each scale note. For understanding this, you need to know how a scale is constructed.

The word scale is derived from Italian, and means a ladder. And every note in the scale can be seen as a step in that ladder. But in most scales, the steps will not have the same length. A major scale is constructed of a series of whole and half steps. On a guitar, it is quite easy to illustrate. One half step is one fret, and a whole step is two frets. It is really amazing that such a simple series of whole and half steps has such a strong musical content, and how a change in sequence will change the musical quality.

A major scale is constructed like this:



From the root, there are the following steps:

Whole - whole - half - whole - whole - whole - half.

Basic chords are constructed as stacks of thirds, and a **third** is the interval covering two steps (from first to third note, second to fourth, third to sixth, etc.). *A triad has thirds on top of each other.* If you start from C, you add the note one third above, which is E, and then you add the note one third above the E, which is G.

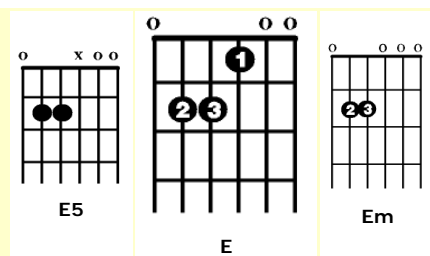
A basic triad consists of the notes 1 - 3 - 5 in the scale. Notice that the first third consists of two whole tone steps from C to G, but the next is one half and one whole step from E to G. The first one with two whole steps is called a major third, and the latter with one whole and a half is called a minor third. The C-chord has a root note (C), a note one major third up from the root (E), and one note a minor third up from E (G).

If we move one step up the scale, and build a new chord the same way, we get the notes 2, 4 and 6=D, F and A. Since it is built on the second note of the scale, it is often referred to as the II chord. But look and listen: Now we have a root (D), and the next note is F, which is only a minor third up from the root, and then the last note (A) is a major third above the F. This creates a minor chord. And then a little more on notation: When it is a minor chord, it is often labeled with roman number constructed of lower case letters, giving us ii.

If an old roman should by accident land at the time around year 2000, he would probably not understand that way of writing roman numbers, but we don't care about the old romans. But beware: There are many ways to write chords, and some might use II^m instead of ii, where the lower case m means minor. You need to know this about chords: **A major chord consists of root, a major third and then a minor third. A minor chord consists of root, a minor third and then a major third.** You will notice that distance from root to the top (5th) note is one major and one minor third, or three whole and one half steps (7 half steps) in both cases. This interval is called a perfect fifth. And since both chords have a perfect fifth, we don't care about mentioning that interval when naming chords. **So as a start it is enough to know that major chords has a major third from the root, and minor chords has a minor third.**

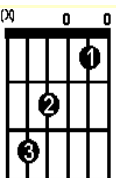
Before going any further, listen carefully to the intervals and the chords. The perfect fifth is strong and stable, but doesn't have much character. In **power-chords** you play only the root and the fifth, giving you a sound that is neither major nor minor. You will often hear such chords played in hard rock, with *Kinks*'s «**You really got me**» and *Deep Purple*'s «**Smoke on the water**» as to classic songs. These chords are often labeled with a 5, for instance A5. In a strictly theoretical sense they are not chords, just intervals. A chord should have at least three notes. But as long as you know that they only have the root and the fifth, we do not care too much about labels. More on those chords later.

The major third is strong and stable, the minor third more mellow, maybe a bit darker and not as stable. It is the major third that gives the chord it's character. Do the following experiment: Play the notes **E-B-E-x-E-B**, the x meaning that you damp out the third string. You have a fifth from E, what could be the power chord E5. (But such a wide and open voicing of the chord does not give much power to it.) Now let the chord ring, and play a G# on the *third string, first fret*. Notice how the chord changes character. Then play a G on the *open third string*, and notice the difference.



The only way to really learn the sound of the intervals, is to sing them over and over again. Play a note at random, and sing the note a given interval above or below. (When discussing chords, we only refers to intervals going up.) If you are not able hit the right note when you try to sing for instance a perfect fifth, then you have not learned the sound of the interval as good as you should. And accept that it might take some time you master this. My [Ear training lessons](#) can help you along.

You might object and say that a major chord, for instance C-major the way you play it, has more than three notes. But it is only doubling of notes, not any new notes. If you play a basic C-major chord as shown, you have two Cs, three Es and one G. Our Dm chord consists of the notes 2, 4 and 6 from the scale. But when we refers to notes in a chord, we count from the root of the chord, not from the root of the scale. So a Dm also have the notes 1 - 3 - 5, counted from the root of the chord (D). This is starting to get a bit complicated, but when you understand the principles, it is not difficult.



Then it is time to continue our chord-building. The next chord will be an E-chord, with the notes E, G and B. Again there is a minor third from E to G, which gives us a minor chord, and this is the iii chord in C major.

The F-chord is a major chord, and the same is the G chord. These are our IV and V chords in the key of C.

On A we are back to minor, giving us Am as the vi chord. But on B we run into trouble. There we get a minor third from B to D, and then another minor third from D to F. This chord, with two minor thirds, is a diminished chord, often referred to as Bdim or B°. You will also notice that we no longer have a perfect fifth from 1 to 5 in the chord. It is two whole and two half steps, or six half steps. This is a diminished fifth. Note the restless and unstable sound of the diminished fifth and the diminished triad. The diminished fifth was once called *The Devil's interval*. More on this in the [Tritone lesson](#).

Now we have built one chord on each note of the C-major scale, and we have only used notes within the C-major scale. It gives us the following chord: C, Dm, Em, F, G, Am, B°, C again. The scale with these harmonies is known as **the harmonized scale**. If you are reading about the harmonized scale in other books or in magazines, it will often be written as a series of different 7th chords. That means that the chords has been extended to four-note chords. This gives a more jazzy sound, but it also makes the basic harmonic content a little less clear. So we will stick to the triads, and come back to four-note chords later. Chords that uses only notes from the scale is called diatonic chords. You have probably played all chords but the B° in C-major songs. If you use a diminished chord, it is often a dim7, but more on that chord later.

As an exercise for better understanding of chords and for better knowledge of your fingerboard, play the harmonized scale horizontally up the neck, on string 5, 4, and 3. By playing horizontally, we mean staying on the same string(s) and going up and down the fingerboard, instead of going across strings. When you move across strings, you play vertically. When you play the chords this way, you have the root on 5th string, the third on 4th string and the fifth on 3rd string.

C Dm Em F G Am B° C

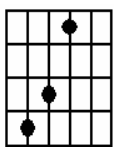
Chord	5th String	4th String	3rd String
C	0	2	3
Dm	2	3	5
Em	4	5	7
F	5	7	8
G	7	9	10
Am	9	10	12
B°	10	12	14
C	12	14	15

Listen to the harmonized scale (MP3).

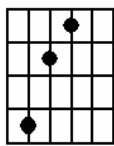
It is recorded in two versions: As written with **block chords**, and with a **combination of arpeggios and chords**, which will make it easier to hear the individual notes.

I will ask those of you who do not read music, or are bad sight readers, to take another look at the chords written in standard musical notation: Three notes stacked nicely on top of each other. No notes are overlapping, no space between the notes, and no accidental #'s (sharps) or b's (flats). This picture tells the one who can interpret the language, that these are all diatonic chords (only scale-notes), and that they are all played in root position. (More on root position and inversion in the [lesson on inversions](#).) Chord diagram tells you where to put your fingers. A tab also tells you how to move your fingers (and in that respect it is better than standard notation) and which strings to play. But neither of them tells you about the music. Only standard musical notation will do that. Even without ambitions of being a new Tommy Tedesco, you should take the time to at least get basic reading skills. (But I will use tabs and chord diagrams in addition to music in all these lessons).

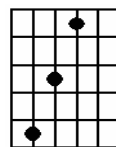
For playing this harmonized scale horizontally (up and down the fingerboard, not crossing to other strings), you need three basic closed chord shapes. (Closed=no open strings). You can read them out of the tabulature, but here you have them as traditional chord boxes:



Major



Minor



Diminished

You can do the same in other keys. In G-major, the chords are G, Am, Bm, C, D, Em, F#° and G, and they can all be played on 6th, 5th and 3rd string:

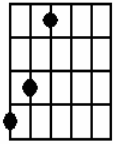
G Am Bm C D Em F#° G

Chord	6th String	5th String	3rd String
G	0	2	3
Am	2	3	5
Bm	4	5	7
C	5	7	8
D	7	9	10
Em	9	10	12
F#°	10	12	14
G	12	14	15

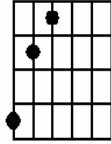
The chord shapes are the same, just moved across to the next set of three strings.

Listen to the harmonized scale (MP3).

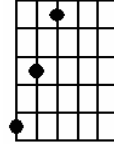
It is recorded in two versions: As written with **block chords**, and with a **combination of arpeggios and chords**, which will make it easier to hear the individual notes.



Major



Minor



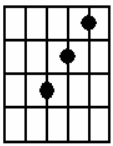
Diminished

We do the same on the other sets of three adjacent strings: On 4th, 3rd and 2nd string, we can play the harmonized F-major scale like this:

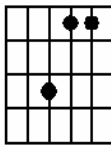
F Gm Am B \flat C Dm E $^{\circ}$ F

1	3	5	6	8	10	11	13
2	3	5	7	9	10	12	14
3	5	7	8	10	12	14	15

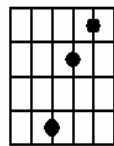
When going to the second string, we can no longer use the same fingering. There is a fourth (two and a half steps=5 frets) between strings 6-5, 5-4, 4-3 and 2-1. But there is only a major third (two whole steps=4 frets) between 3rd and 2nd string. When moving the chords across, we must compensate for that by going one fret higher on the second string. This gives us the following chords:



Major



Minor



Diminished

Listen to the harmonized scale (MP3).

It is recorded in two versions: As written with **block chords**, and with a **combination of arpeggios and chords**, which will make it easier to hear the individual notes.

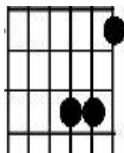
And finally in B \flat -major on the top three strings.

B \flat Cm Dm E \flat F Gm A $^{\circ}$ B \flat

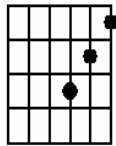
1	3	5	6	8	10	11	13
3	4	6	8	10	11	13	15
5	5	7	8	10	12	14	15

Again we have to compensate for that smaller interval between third and second string. The relation between the top and bottom strings will not change. The distance is still a major third + a fourth. They changed order, but that does not affect the result. (The distance is still reduced compared to distance between for instance 5th and 3rd string=two fourths.) But the interval between the bottom and the middle string has been reduced from a fourth to a major third, and again we must compensate by going one fret higher than on 3rd string. One might wonder why one do not have the same interval between all strings. But you see that the fingering generally is easier on the top strings, so the standard tuning is not without purpose.

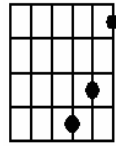
The fingerings for the top three strings, are:



Major



Minor



Diminished

Listen to the harmonized scale (MP3).

It is recorded in two versions: As written with **block chords**, and with a **combination of arpeggios and chords**, which will make it easier to hear the individual notes.

As ear-training, sing the harmonized scale. Break the chords in arpeggios. Sing the note first, and play it afterwards to check if you got it right. An arpeggiated harmonized scale in G- major can be like this:

G Am Bm C D Em F#° G

Listen to the arpeggios (MP3)

Now it might be time to ask so what? The harmonized scale is boring. And this might be true. But if you know the harmonized scale, and understands how it is constructed, then you can figure out the basic chords in any major key. Some chords are more important than others, and you probably know already know that the I, IV and V chords are the most important in blues, rock and pop, and that the progression is sometimes referred to as the **Three Chord Wonder**. But if you are trying to figure out the chords for a song, and the I, IV or V chord does not sound right, it might be an idea to check out some of the other chords in the harmonized scale. We can extend our table of chords for all 12(13) keys, to cover the harmonized scale in triads:

	I	ii	iii	IV	V	vi	vii°
C-major	C	Dm	Em	F	G	Am	B°
G-major	G	Am	Bm	C	D	Em	F#°
D-major	D	Em	F#m	G	A	Bm	C#°
A-major	A	Bm	C#m	D	E	F#m	G#°
E-major	E	F#m	G#m	A	B	C#m	D#°
B-major	B	C#m	D#m	E	F#	G#m	A#°
F#-major	F#	G#m	A#m	B	C#	D#m	E#°
Gb-major	Gb	Abm	Bbm	Cb	Db	Ebm	F°
Db-major	Db	Ebm	Fm	Gb	Ab	Bbm	C°
Ab-major	Ab	Bbm	Cm	Db	Eb	Fm	G°
Eb-major	Eb	Fm	Gm	Ab	Bb	Cm	D°
Bb-major	Bb	Cm	Dm	Eb	F	Gm	A°
F-major	F	Gm	Am	Bb	C	Dm	E°

Harmonized scales with Triads

Root	C	C#/Db	D	D#/Eb	E	F	F#/Gb	G	G#/Ab	A	Bb	B
1. inv	C	C#/Db	D	D#/Eb	E	F	F#/Gb	G	G#/Ab	A	Bb	B
2. inv	C	C#/Db	D	D#/Eb	E	F	F#/Gb	G	G#/Ab	A	Bb	B




Harmonized scales with 7th chords

Root	C	C#/Db	D	D#/Eb	E	F	F#/Gb	G	G#/Ab	A	Bb	B
1. inv												
2. inv												
3-inv												



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Further reading

	Arnie Berle:Chords and Progressions for Jazz and Popular Guitar I learned the basis of what I know about chord progressions, harmonized scales and how it applies to the fretboard from Arnie Berle's long lasting column in Guitar Player Magazine . You will find a lot of the same material in this book.	Order from SheetmusicPlus (US)	From Amazon US From Amazon UK
	George Van Eps Harmonic Mechanisms Gtr Vol 1 If you really want to dig into harmony on the guitar, George Van Eps' three volume series is the one to work with. This is how the publisher describes it: "The most in-depth, revolutionary presentation of the harmonic framework of music is applied to the guitar fingerboard ever presented. Leads to total mastery of harmonic and technical aspects of the guitar. The material in this landmark series of 3 massive volumes address virtually every aspect of playing jazz guitar representing the fruits of years of the author's investigation of harmony and fingerboard mobility. This series of books leads to total mastery of the harmonic and technical aspects of the guitar. In notation only." I agree with this description. There could have been some more explanation of the harmony. But then tree volumes would probably not have been enough ... And I will add: I do not believe that these books are bestsellers. The fact that Mel Bay published them, tells us that they are serious about music, and not only about making money. A word of warning: These books are in standard notation only, no TAB! 328 pages. Published by Mel Bay Pub., Inc. (MB93667) See more info...		Order from: SheetmusicPlus (US)
	George Van Eps Harmonic Mechanisms Gtr Vol 2 by George Van Eps. For all guitars. All styles, jazz. Level: Intermediate-Advanced. Book. Theory & harmony. Size 8.75x11.75. 384 pages. Published by Mel Bay Pub., Inc. (MB93715) See more info...		Order from: SheetmusicPlus (US)
	George Van Eps Harmonic Mechanisms Gtr Vol 3 by George Van Eps. See my comments to Vol 1 Level: Intermediate-Advanced. Book. Theory & harmony. Size 8.75x11.75. 188 pages. Published by Mel Bay Pub., Inc. (MB93716) See more info...		Order from: SheetmusicPlus (US) Amazon US


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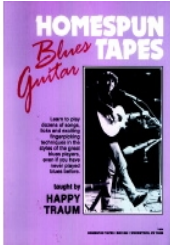
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Book of the Month
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Minor chord inversions



The harmonized scale

**Inverted chords - 1. inversion:
harmonized scale**



Books

Minor chords can be inverted just as major chords. I am not going to explain the basics of chord inversions once more.

A minor chord in first inversion starts with a **major third** from the third to the fifth note. In **C-minor** this is **E_b - G**. Just as the minor third at the bottom of the major chord in first inversion a "minorish" sound, the major third at the bottom of the minor chord in first inversion will give it a "majorish" sound.

The second interval is the same **perfect fourth** as in the first inversion of the major chord, and gives it the same kind of concluding quality. But the outer interval is a **major sixth from E_b to C**.

In second inversion, the interval from the bottom to the middle note is a **perfect fourth**, just as the second inversion of the major chord. But the next is a **minor third**, and the outer interval is **minor sixth**.

Click here for a list of songs with xxx



The harmonized scale

**Inverted chords - 1. inversion:
harmonized scale**



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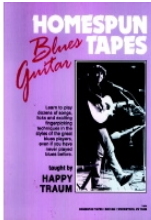
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Book of the
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Inverted chords - further exploration of the harmonized scale – 1. inversion



Minor chord inversions

Inverted chords - 2. inversion



Books

First inversion

In the harmonized scale lesson, we saw that chords are built by stacking thirds on top of each other, and that a triad (three note chord) consists of the notes 1 - 3 - 5. But we can move the root up one octave, which gives us a chord with the notes 3 - 5 - 1. By doing that, we are **inverting** the chord. A chord with the notes 3 - 5 - 1 is a chord in *first inversion*.

The intervallic relations between the notes has changed, but it is still a major chord. In a **major chord in first inversion**, we have a *minor third* from the lowest note to the next, and the a *fourth* to the highest note. The interval from the lowest to the highest note is a *minor sixth*.

If you compare the sound of a major chord in *root position* and in *first inversion*, you will notice that the first inversion is a bit more minor sounding, due to the minor third in the bottom. It is also less stable compared to the chord in root position. But with the root note on top, it can still be used as a concluding chord. **John Duarte** used this little arrangement of «Three blind mice» to illustrate the effect of different inversions in his xxx column in **Guitar Player Magazine**.

xxxx

To help you remember the sound of the notes in a major chord in first inversion, listen to **Eric Clapton: My Father's Eyes** on his **Pilgrim** album. The opening notes are a three note arpeggio of a major chord in first inversion (an E-major chord). **Listen to the intro**. You will often hear the same note as an ending - the final interval from 5 up to 1 gives the final dominant to tonic move.

A **minor chord in first inversion** starts with a major third, and then a fourth, and the interval from lowest to highest is a *major sixth*. And our restless friend, the **diminished chord in first inversion** is a *minor third* and a *tritone*. A **tritone** is an interval of three whole steps. The distance, and then of course the sound is the same as a *diminished fifth*. But the diminished fifth have two whole steps and two half steps, while the tritone has three whole steps. But both give the sum of six half steps.

Key of E, first inversion.

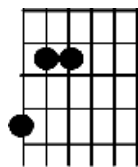
Play the harmonized scale with triads in first inversion. Start on the bottom three strings, in the key of E-major:

	E	F#m	G#m	A	B	C#m	D#°	E
--	---	-----	-----	---	---	-----	-----	---

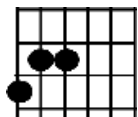
	2	4	6	7	9	11	13	14
	2	4	6	7	9	11	12	14
	4	5	7	9	11	12	14	16

Again you should take a look at the musical notation. Still no accidental. But now there is a little space between the middle and the top note of the chord. This tells us that the chord is in its first inversion.

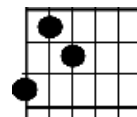
Here are the three movable, closed chord shapes needed for this harmonized scale:



Major
1. inv.



Minor
1. inv



Diminished
1. inv

Listen to a recording of this harmonized scale (MP3).

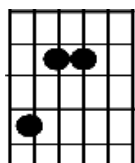
It is recorded in two versions. The first is with **block chords** as written. The second is a **combination of arpeggios and chords**, which makes it easier to hear the individual notes.

Then A-major on the next three strings:

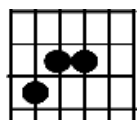
A Bm C[#]m D E F[#]m G[#]° A

2	4	6	7	9	11	13	14
2	4	6	7	9	11	12	14
4	5	7	9	11	12	14	16

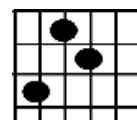
And the chord fingering:



Major
1. inv.



Minor
1. inv



Diminished
1. inv

Listen to a recording of this harmonized scale (MP3).

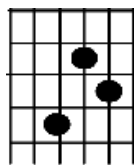
It is recorded in two versions. The first is with **block chords** as written. The second is a **combination of arpeggios and chords**, which makes it easier to hear the individual notes.

And D-major:

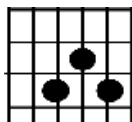
D Em F[#]m G A Bm C[#]° D

3	5	7	8	10	12	14	15
2	4	6	7	9	11	12	14
4	5	7	9	11	12	14	16

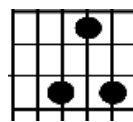
With chord-shapes. Again we have to compensate in our fingering for the smaller interval between 3rd and 2nd string.



Major
1. inv.



Minor
1. inv



Diminished
1. inv

Listen to a recording of this harmonized scale (MP3).

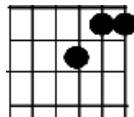
It is recorded in two versions. The first is with **block chords** as written. The second is a **combination of arpeggios and chords**, which makes it easier to hear the individual notes.

And finally F-major on the top three strings.

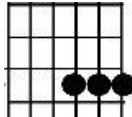
F Gm Am B \flat C Dm E $^{\circ}$ F

1	3	5	6	8	10	12	13
1	3	5	6	8	10	11	13
2	3	5	7	9	10	12	14

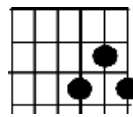
With chords, with the other fingering-compensation for the smaller interval.



Major
1. inv.



Minor
1. inv



Diminished
1. inv

Listen to a recording of this harmonized scale (MP3).

It is recorded in two versions. The first is with **block chords** as written. The second is a **combination of arpeggios and chords**, which makes it easier to hear the individual notes.



[Minor chord inversions](#)

[Inverted chords - 2. inversion](#)



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 GWA=[Guitar World Acoustic](#) * Gu=[Guitar](#) * Gst=[Guitarist](#) * HTPG=[How To Play Guitar](#)
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Inverted chords - further exploration of the harmonized scale – 2. inversion



Harmonized scale
1. Inversion

A chord substitution primer



Books

There is no prize for guessing that you get the second inversion if you take the 3 from the bottom of a chord in first inversion, and move it up one octave. A chord in second inversion has the notes 5 - 1 - 3.

Let us first take another look at John Duarte's Three blind mice arrangement, this time ending on the chord in second inversion.

xxxx

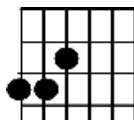
It simply does not sound right as a concluding chord. You want to continue, even though you are at the tonic chord. The chord in its second inversion is too unstable. But on the other hand (or other end?) the second inversion works very well as a *kick off chord*. There are thousands of songs that start with the notes of the second inversion, often with the starting fifth as a pickup note.

Once again, play through the triads in second inversion, horizontally. Start with C-major on the bottom set of strings

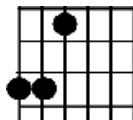
1 C Dm Em F G Am B° C

The space between the bottom and the middle note in the music tells us that this is 2. inversion.

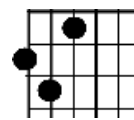
The corresponding chord-shapes are:



Major
2. inv.



Minor
2. inv



Diminished
2. inv

Listen to a recording of this harmonized scale (MP3).

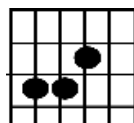
It is recorded as a **combination of arpeggios and chords** to make it easier to hear the individual notes.

Continue with E-major:

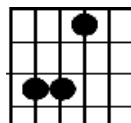
E F#m G#m A B C#m D#° E

1	2	4	6	8	9	11	13
2	4	6	7	9	11	13	14
2	4	6	7	9	11	12	14

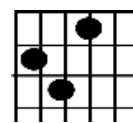
And chord shapes:



Major
2. inv.



Minor
2. inv.



Diminished
2. inv.

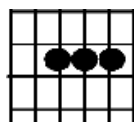
Listen to a recording of this harmonized scale (MP3).

It is recorded as a **combination of arpeggios and chords** to make it easier to hear the individual notes.

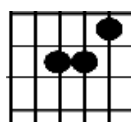
A-major:

A Bm C#m D E F#m G#° A

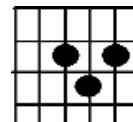
2	3	5	7	9	10	12	14
2	4	6	7	9	11	13	14
2	4	6	7	9	11	12	14



Major
2. inv.



Minor
2. inv.



Diminished
2. inv.

Listen to a recording of this harmonized scale (MP3).

It is recorded as a **combination of arpeggios and chords** to make it easier to hear the individual notes.

And finally D-major:

D Em F#m G A Bm C#° D

Major
2. inv.

Minor
2. inv

Diminished
2. inv

Listen to a recording of this harmonized scale (MP3).

It is recorded as a **combination of arpeggios and chords** to make it easier to hear the individual notes.



**Harmonized scale
1. Inversion**

A chord substitution primer



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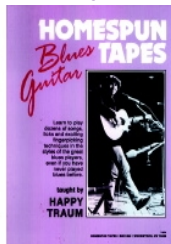
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A chord substitution primer



Inverted chords - 2. inversion
Harmonized scale

The diminished triad



Books

You have probably heard the term *chord substitution* many times. You may have wondered how to know which chords to substitute with what, just as I have done. As one beginning, we can say that two chords with many notes in common may substitute each other. If we look at our six chords, they compare like this:

	C	D	E	F	G	A	B	C	D	E
C-major	C		E		G			C		E
D-minor		D		F		A			D	
E-minor			E		G		B			E
F-major	C			F		A		C		
G-major		D			G		B		D	
A-minor	C		E			A		C		E

C-major has two notes in common with **E-minor** (E and G) and two notes common with **A-minor** (C and E). Remember that *the root gives the chord its identity*. As **A-minor** also have the C, the identity of C is not completely lost, even though C is no longer the root. If we add that *the 3rd - E - gives character*, we see that E is also part of **A-minor**. The note that is lost is the fifth - G, which is the least important note in the chord. As *the fifth gives stability*, we may lose stability, but we maintain the notes that give identity and character, even though both the identity and character change when we substitute chords. If we change from **C-major** to **E-minor**, the root note of C is lost, while the less important fifth is maintained. Even though both **E-minor** and **A-minor** has two notes in common with **C-major**, a shift to **A-minor** will be a closer shift compared to **E-minor**, because the two most important notes in the **C-major** chord is maintained. We can substitute **C** with **Am** or **Em**, but **Am** is closer.

F-major has two notes in common with **D-minor** (F and A), and two notes in common with **A-minor** (A and C). As for the **C-major**, the shift to a chord where the more important notes are maintained will sound closer. The **D-minor** has the root of the **F-major** (F) and the third (A), and is closer than **A-minor** that have the less important fifth of the **F-major** (C), together with the third (A). We can substitute **F** with **Dm** or **Am**, but **Dm** is closer.


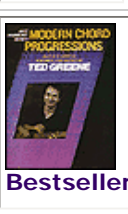
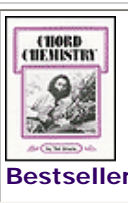


G-major has two notes in common with **E-minor** (G and B). None of the other primary or secondary chords in C-major have more than one note in common with the **G-major** chord. This mean that **E-minor** is by far the best candidate if we want to substitute **G-major** as the V-chord with another triad.

You might substitute chords with other chords that has only one note in common, but you are then moving farther away from your harmonic point of departure. It is a more adventurous step into more remote areas. As with other adventures, it might give you excitement, fame and honor, or it might be hard labor that ends in nothing at best, or a disaster at the worst. But as long as you stick to the six primary and secondary triads, it should be a rather safe journey.

Another guideline is that you can substitute a chord with another chord that has the melody note in it. If the melody note is G and you want to substitute the **C-major** with something else, **Am** may not be the best choice because there is no G in an **Am** chord. A **G-major** or **E-minor** might be a better choice - if the best solution is not just to stay where you are - with the **C-major** chord.

But remember: Your ear should be your guide and your taste should be the judge. There are no strict rules saying what you shall and what you shall not do.

Further reading

	<p>Chords, Progressions, Substitutions & Pieces by John Griggs. Level: Intermediate. Chords, Progressions. Book/CD Set. Size 8.75x11.75. 148 pages. Published by Mel Bay Pub., Inc. See more info... ToC No MB96242BCD</p>	<p>Order from: SheetmusicPlus</p>
 Bestseller!	<p>Ted Greene - Modern Chord Progressions Edited by Aaron Stang. Chords, Progressions. Guitar method or supplement. 116 pages. Published by Warner Brothers. See more info... ToC No WBEL02779 Review:</p>	<p>Order from: SheetmusicPlus</p>
 Bestseller!	<p>Ted Greene - Chord Chemistry For guitar. Format: instructional book. Chords. With instructional text and guitar chord diagrams. Chord chart, chords, reference and general theory. 114 pages. 9x12 inches. Published by Warner Brothers. See more info... ToC No WBEL02778</p>	<p>Order from: SheetmusicPlus MusicRoom Amazon UK</p>
	<p>Inverted chords - 2. inversion Harmonized scale</p>	<p>The diminished triad </p>



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The diminished triad



[A chord substitution primer](#)

[The Flat Five Substitution
Part 1](#)



Books

If you have played the harmonized scale, you have played the diminished triad. But we have not discussed this chord so far in this series. If we build a diatonic triad on the 7th note of the major scale, we will first get a minor third, which should bring us into the minor chord family. If we are in the key of C, it will be B-D. But the next third, from D to F, is a minor third too, and not a major third as in the minor chord. We get a chord with two minor thirds. But what is even more important is that the add up to a **diminished fifth**. As said several times already, the fifth gives the chord stability. But it must be a perfect fifth. The diminished fifth - the **tritone** - is a very unstable interval. And a chord with a diminished fifth instead of a perfect fifth will be an unstable chord.

Composers of music to movies will often take advantage of the restless instability of the diminished chord when make music to scenes when the audience is holding their breath waiting for the nice guy to be trapped by the bad guy, or something similar. We will come back to this effect of the diminished chord later.

The reason for introducing the diminished triad now, is first to complete the harmonized scale. We have used the triads built on the first 6 notes, but not the 7th. Now we know what kind of chord this would be, but it is not a chord we will use very often.

We should also take another look at the dominant 7th chord. I said in the lesson on the dominant 7th that it can be viewed in two ways: As a major triad with the minor 7th added, or as an extension of the major triad with another third - this time a minor third. But there is a third way: The 7th chord may be seen as two overlapping triads: A major triad with the notes G-B-D and a diminished triad with the notes B-D-F. And as the latter - the diminished triad built on the 7th - has the important tritone, it can substitute the dominant 7th. If you are in the key of C and substitute **G7** with **B°**, it loose the identity of a **G** chord, but retain the function of the dominant 7th.

You should remember that the simple G-triad also has significant concluding power when acting as a V chord i C-major. This power of the V-chord is lost if you substitute **G7** with B°. But it retain the tritone of the **G7**. The **G** and the **B°** each has some of the power of the **G7**, but **G7** have it all.

For more on tritones and the diminished chord, go to:

- | | | |
|--|--|--|
| <ul style="list-style-type: none"> • Theory: Tritone interval • Theory: The diminished triad • Theory: The dominant 7th chord • Chords: dim chords | <ul style="list-style-type: none"> • Chords: Dim7 chords • Progressions: Chord - diminished • Progressions: V7-I change | <ul style="list-style-type: none"> • Tritone Blues - Part 1 * Part 2 * Part 3 * Part 4 • Blues Gutiar: 12-bars, Two Chord Shapes and a Touch of Jazz - Part 1 * Part 2 * Part 3 * Part 4 • Blues Guitar: The Flat-five Substitution – Part 1 * Part 2 * Part 3 * Part 4 * Part 5 * Part 6 * Part 7 • The same in Theory: The Flat-five Substitution • Song: The Beatles' song Michelle |
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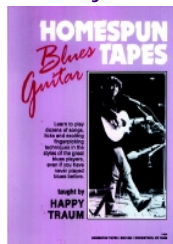
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The Flat Five Substitution - part 1



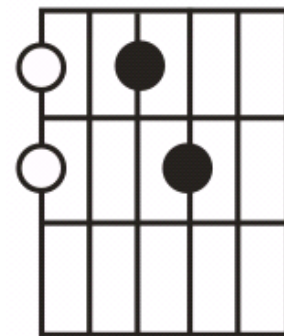
The diminished triad

The Flat Five Substitution
Part 2



Books

You have probably heard jazz musician talk about *the flat five substitution* many times. You can learn to know that you can always substitute a dominant 7th chord or any extension of such chords with the dominant 7th a flat five above or below. Instead of **A7** you can play **Eb7**. But in my opinion, it is not enough to know. We should *understand* the concept.

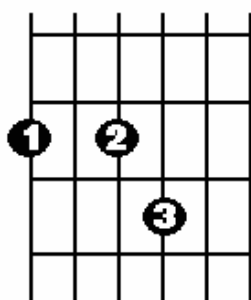


The key to this substitution is that the two most important notes in a 7th chord is the 3rd and the 7th. The interval between these notes is *tritone*. If we start from the **G7** chord, the 3rd is a B and the 7th is an F. From B to F is a diminished (or flat) fifth = six half steps = tritone. From F to B is an augmented fourth = six half steps = tritone. The tritone divides the scale into two equal parts, which makes it a symmetric interval. Our ears will not distinguish between a diminished fifth and an augmented fourth. We just hear the tritone, for instance an F and a B. If you are not familiar with the tritone, you have to go back to some previous lessons.

We can substitute the other notes in a 7th chord, but not the two notes that make up the *tritone*. If you leave out one of these, the chord will lose its character as a 7th chord.

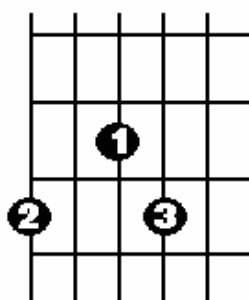
If we go up one diminished fifth from **G** (six half steps), we end at **Db**. As the interval is symmetric, we will also end on **Db** if we go down a diminished fifth. The **Db7** chord has the notes **Db-F-Ab-Cb**. **Cb** and **B** are *enharmonic*, which means that they are the same note spelled in two different ways. In **Db7**, the correct spelling of the note is **Cb**, a diminished fifth up from F. If we spelled it **B**, it would be an augmented fourth, and the chord would be some kind of a sixth chord. But our ears do not distinguish between the two. And this is the key to the *flat five substitution*: The tritone in the **Db7** is the same as the tritone in a **G7**. The other notes have changed, but we have kept the two important ones.

With this new knowledge, we shall go back to where we stopped in the *12-bars, Two Chord Shapes and a Touch of Jazz* lesson, and play some blues with flat five substitution. We will still use only the two chord shapes from this lesson, and we will be in the key of A this time. The flat five substitution for **A7** will be **Eb7**, for **D7** it will be **Ab7**, and the flat five substitution for **E7** will be **Bb7**. If you are like many of your fellow guitar players, you will look for another tune when you see chords like **Eb7**, **Ab7** and **Bb7**. But they are very simple. We will use the same two chord shapes as we used in *12-bars, Two Chord Shapes and a Touch of Jazz*



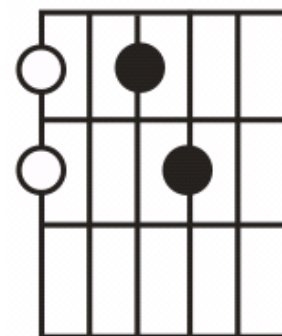
A7

5 fr



Eb7

5 fr



A7/Eb7

5 fr

We play both shapes based on **5th fret**. The first will then give us an **A7** chord. Then we move the note on the 6th string up one fret, and we have a **Eb7**. You will have to change fingering of both the 6th and 4th string – this is at least how I prefer to play this change. In the shape to the right, I have combined the two, to show the relation. The black notes constitute the **tritone**, and we have to keep these notes in both chords. When we play at 5th fret on the 6th string, we get the notes **A, G** and **C#**, which is an **A7 without the fifth**. The **tritone** is the interval between **G** and **C#**. If we move up to the 6th fret on the 6th string, and keep the tritone, we get the notes **Bb, G** and **Db**. **Db** is **enharmonic** with **C#**, so we will not hear the difference. These notes constitute an **Eb7 without root**.

It would be more precise to say the the notes **Bb, G** and **Db** *function as* an **Eb7**. It is not really an **Eb7** when there is no root note (Eb) in the chord. What we really have is a **Gdim**. In the next part we will apply this **flat five substitution** to introduce some **passing chords** in the 12-bar progression.

For more on tritones and the diminished chord, go to:

- | | | |
|--|--|--|
| <ul style="list-style-type: none"> • Theory: Tritone interval • Theory: The diminished triad • Theory: The dominant 7th chord • Chords: dim chords | <ul style="list-style-type: none"> • Chords: Dim7 chords • Progressions: Chord - diminished • Progressions: V7-I change | <ul style="list-style-type: none"> • Tritone Blues - Part 1 * Part 2 * Part 3 * Part 4 • Blues Gutiar: 12-bars, Two Chord Shapes and a Touch of Jazz - Part 1 * Part 2 * Part 3 * Part 4 • Blues Guitar: The Flat-five Substitution – Part 1 * Part 2 * Part 3 * Part 4 * Part 5 * Part 6 * Part 7 • The same in Theory: The Flat-five Substitution • Song: The Beatles' song Michelle |
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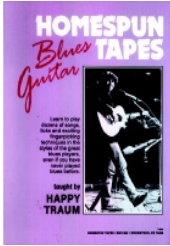
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The Flat Five Substitution - part 2



The Flat Five Substitution
Part 1

The Flat Five Substitution
Part 3



Books

As said in part 1, now we will use the flat five substitution to introduce some passing chords in the 12-bar blues. No new chord shapes are used, only new positions.

Chord diagrams for the 12-bar blues progression (Part 2):

Measures 1-4: A7, Eb7, D7, Ab7, A7, D7, A7, Eb7

Measures 5-8: D7, Ab7, D7, Ab7, A7, D7, A7, Eb7

Measures 9-12: E7, Eb7, D7, Ab7, A7, Eb7, D7, Eb7, E7

Standard notation and fretboard diagrams are provided for each measure, showing the application of the flat five substitution.

If you know your music theory, and read standard notation, you should notice that the notation for the **Eb7**

chord is not correct in all bars where this chord occurs. In the first example below, it is written as **Bb-G-C#**, which is not correct. The correct spelling, as in the second example, is **Bb-G-Db**. But I want to make clear, also in the notation, that we have the same tritone – **G - C#/Db** – in both chords. I had to make a compromise. I prefer to illustrate, also in the notation, that it is the same notes, even if they might change their names. In the second example, we do not keep the tritone as the chord change, so then there was no reason not to write it correctly.

Diagram illustrating a 12-bar blues progression in A major (4/4 time). The progression uses the flat five substitution (A7 to Eb7). The notation shows the guitar fretboard for A7, Eb7, and D7. The tablature below shows the fingerings for the strings (T, A, B, E):

String	Bar 1	Bar 2	Bar 3	Bar 4	Bar 5	Bar 6
T						
A	6	6	6	6	5	5
B	5	5	5	5	4	4
E	5	5	5	6	5	5

Diagram illustrating a 12-bar blues progression in E major (4/4 time). The progression uses the flat five substitution (E7 to Eb7). The notation shows the guitar fretboard for E7, Eb7, and D7. The tablature below shows the fingerings for the strings (T, A, B, E):

String	Bar 1	Bar 2	Bar 3	Bar 4	Bar 5	Bar 6
T						
A	7	7	7	7	5	5
B	6	6	6	6	4	4
E	7	7	7	7	5	5

The **Ab7** is not correctly written either. It is written as the first example to the right, with the notes **Ab-F#-C**. It should be no **F#** in a **Ab7**, it should be written as the enharmonic **Gb**, and the notes should be written as in the correct example to the far right: **Ab-Gb-C**. But again I prefer to illustrate that the note does not change from **D7** to **Ab7**, even though it change name.

Diagram illustrating a 12-bar blues progression in D major (4/4 time). The progression uses the flat five substitution (D7 to Ab7). The notation shows the guitar fretboard for D7 and Ab7. The tablature below shows the fingerings for the strings (T, A, B, E):

String	Bar 1	Bar 2	Bar 3	Bar 4	Bar 5	Bar 6
T						
A	5	5	5	5	5	5
B	4	4	4	4	4	4
E	5	5	5	4	5	5

You do have to use the flat five substitution for passing chords only, as we will see in part three.

For more on tritones and the diminished chord, go to:

- | | | |
|--|--|--|
| <ul style="list-style-type: none"> • Theory: Tritone interval • Theory: The diminished triad • Theory: The dominant 7th chord • Chords: dim chords | <ul style="list-style-type: none"> • Chords: Dim7 chords • Progressions: Chord - diminished • Progressions: V7-I change | <ul style="list-style-type: none"> • Tritone Blues - Part 1 * Part 2 * Part 3 * Part 4 • Blues Guitar: 12-bars, Two Chord Shapes and a Touch of Jazz - Part 1 * Part 2 * Part 3 * Part 4 • Blues Guitar: The Flat-five Substitution – Part 1 * Part 2 * Part 3 * Part 4 * Part 5 * Part 6 * Part 7 • The same in Theory: The Flat-five Substitution • Song: The Beatles' song Michelle |
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12-bar blues

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**The Flat Five Substitution
Part 1**

**The Flat Five Substitution
Part 3**



Further references

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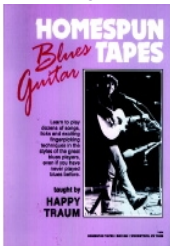
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The Flat Five Substitution - part 3



The Flat Five Substitution
Part 2

The Flat Five Substitution
Part 4



Books

As said in part 1, now we will use the flat five substitution to introduce some passing chords in the 12-bar blues. No new chord shapes are used, only new positions.

Diagram illustrating the Flat Five Substitution in a 12-bar blues progression, showing chord shapes and fret positions (4fr.) for various chords (A7, Eb7, D7, Ab7) across three systems of notation (T, A, B).

System 1 (Measures 1-4):

- Measures 1-2: A7 (4fr.), Eb7 (4fr.)
- Measures 3-4: D7 (4fr.), Ab7 (4fr.)

System 2 (Measures 5-8):

- Measures 5-6: A7 (4fr.), D7 (4fr.)
- Measures 7-8: A7 (4fr.), Eb7 (4fr.)

System 3 (Measures 9-12):

- Measures 9-10: E7 (4fr.), Eb7 (4fr.)
- Measures 11-12: D7 (4fr.), Ab7 (4fr.)

The diagram also includes a fretboard diagram for the 12-bar blues progression, showing the sequence of chords and their positions (4fr.) across the fretboard.

Once again I will remind you that these examples are designed to illustrate how you can apply these chords,

and not composed to make exciting music. You have to take it from here and experiment with your own variations.

We have to do the same in another key, to make sure that you will be able to play in all keys. You will find that in part 4.

For more on tritones and the diminished chord, go to:

- | | | |
|--|--|--|
| <ul style="list-style-type: none"> • Theory: Tritone interval • Theory: The diminished triad • Theory: The dominant 7th chord • Chords: dim chords | <ul style="list-style-type: none"> • Chords: Dim7 chords • Progressions: Chord - diminished • Progressions: V7-I change | <ul style="list-style-type: none"> • Tritone Blues - Part 1 * Part 2 * Part 3 * Part 4 • Blues Gutiar: 12-bars, Two Chord Shapes and a Touch of Jazz - Part 1 * Part 2 * Part 3 * Part 4 • Blues Guitar: The Flat-five Substitution – Part 1 * Part 2 * Part 3 * Part 4 * Part 5 * Part 6 * Part 7 • The same in Theory: The Flat-five Substitution • Song: The Beatles' song Michelle |
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**The Flat Five Substitution
Part 2**

**The Flat Five Substitution
Part 4**



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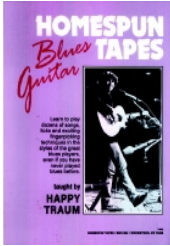
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The Flat Five Substitution - part 4



The Flat Five Substitution
Part 3

The Flat Five Substitution
Part 5



Books

This is basically the same 12-bar blues variation as in part 3, but this time it is in D-major. If you learn to play these progressions in A and D, you should be able to play in any key.

Chord progressions for The Flat Five Substitution - part 4, measures 1-12.

Measures 1-4: D7, Ab7, G7, C#7, D7, A7, D7, Ab7

Measures 5-8: G7, C7, G7, C#7, D7, A7, D7, Ab7

Measures 9-12: A7, D7, G7, C#7, D7 A7 Eb7 A7, D7 Ab7 A7

Tablature for measures 1-12:

Measure	T	A	B
1	5	4	5
2	5	4	4
3	5	4	4
4	5	4	4
5	4	3	3
6	4	3	3
7	5	4	5
8	5	4	5
9	6	5	5
10	4	3	3
11	5	4	5
12	5	4	5

I have included one chord that is neither a primary chord or a flat five substitution for any of those. This is

the **C7** in bar 5. I have put it in because I think it fits well into the flow of chords. I have no explanation why a **C7** should work in this context. I am just sticking to the golden rule of music: If it sounds right, it is right.

Also in this example, two chords are not correctly written in the standard notation. The version of **Ab7** that is used should be written as **Ab-Gb-C**, but is written as **Ab-F#-C**. The **Eb7** should be written **Bb-Db-Eb**, but is written **Bb-C#-Eb**. Again the reason is that it would be more difficult to see that we are playing the same notes, even though the names are changing.

One could also discuss how the chords should be labeled. I have chosen **C#7** and not **Db7**, because **C#** is a note that belongs to the A-major scale. But then it is an augmented fourth, and not a diminished (flatted) fifth above the G. One could also argue that it would be more correct to use **G#7** instead of **Ab7**, and **D#7** instead of **Eb7**. I am not going to discuss the choices, just say that I have made a choice that can be discussed. If you would have preferred other labels, your choice would be as "correct" as mine.

For more on tritones and the diminished chord, go to:

- | | | |
|--|--|--|
| <ul style="list-style-type: none"> • Theory: Tritone interval • Theory: The diminished triad • Theory: The dominant 7th chord • Chords: dim chords | <ul style="list-style-type: none"> • Chords: Dim7 chords • Progressions: Chord - diminished • Progressions: V7-I change | <ul style="list-style-type: none"> • Tritone Blues - Part 1 * Part 2 * Part 3 * Part 4 • Blues Guitar: 12-bars, Two Chord Shapes and a Touch of Jazz - Part 1 * Part 2 * Part 3 * Part 4 • Blues Guitar: The Flat-five Substitution – Part 1 * Part 2 * Part 3 * Part 4 * Part 5 * Part 6 * Part 7 • The same in Theory: The Flat-five Substitution • Song: The Beatles' song Michelle |
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12-bar blues

- | | | |
|--|--|--|
| <ul style="list-style-type: none"> • Classic Lesson: 1 - BASIC BLUES • Blues Guitar Lesson 1: The 12 bar blues in E • Blues Guitar Lesson 2: Some variations of the 12-bar blues in E • Chord Progressions: Basic 12-bar blues | <ul style="list-style-type: none"> • Lesson 14: Blues in A - introduction • Tritone Blues - Part 1 * Part 2 * Part 3 * Part 4 • Blues Guitar: 12-bars, Two Chord Shapes and a Touch of Jazz - Part 1 * Part 2 * Part 3 * Part 4 | <ul style="list-style-type: none"> • Blues Guitar: The Flat-five Substitution – Part 1 * Part 2 * Part 3 * Part 4 • Blues Guitar – Add the m7 chord - Part 2 * Part 3 * Part 4 • The same in Theory: The Flat-five Substitution |
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The Flat Five Substitution
Part 3

The Flat Five Substitution
Part 5



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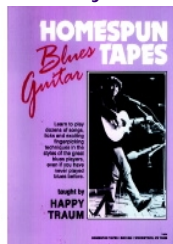
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The Flat Five Substitution - part 5



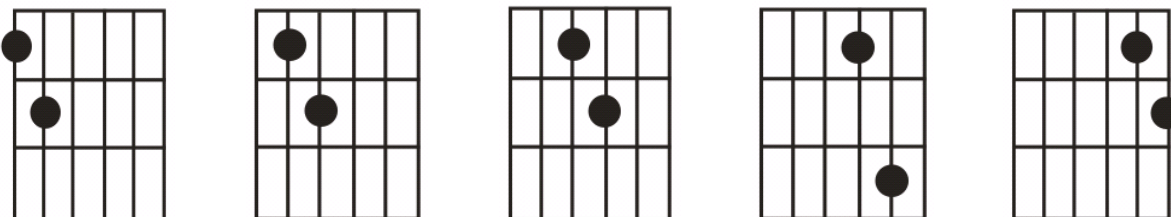
The Flat Five Substitution
Part 4

The Flat Five Substitution
Part 6



Books

Before closing, you should have a little bit more to play with. First you need to know where you find the tritone on you guitar. These are the five basic tritone positions:



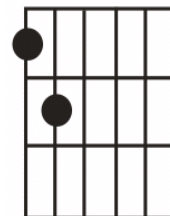
I use the **A7** as the basis in all examples, with the **Eb7** as the flat five substitution chord. But the positions are moveable. The tritone in these two chords are **C#-G** and **G-Db**. Before going on, I will remind you that the **C#** and **Db** are *enharmonic*, and the the tritone is symetric. (The distance from C# to G is the same as the distance from G to C#, meaning that we still get a tritone if the interval is inverted).

I remind you that these chords are not full 7th chords. We have removed either the 5th or the root from the chords. The dominant7 chord without the root is really a dim chord that function as a dominant7. In our context, a **C#dim** may function as an **A7**, and **Gdim** may function as **Eb7**.

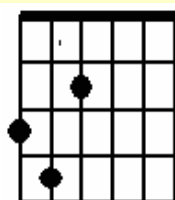
Tritone on 6th and 5th string

We can start by building 3-note 7th chords around the tritone on the 6th and 5th string. As this tritone is on the two bottom strings, we have to vary the notes in the treble, and not the bass-note, as we did in the examples so far.

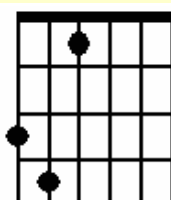
We find the tritone in two positions: 3rd fret on 6th string and 4th on 5th, and then at 9th fret at 6th and 10th fret on the 5th string.



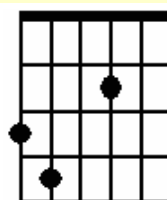
Tritone on 3rd and 4th fret



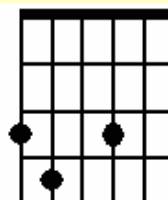
A7 (C#dim)



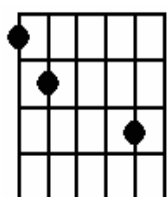
Eb7



A7

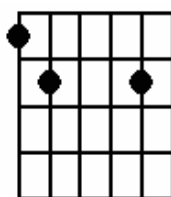


Eb7 (Gdim)



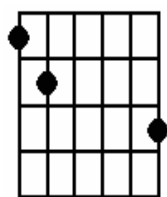
A7 (C#dim)

3 fr



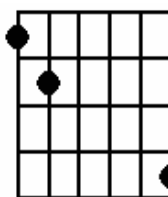
Eb7

3 fr



A7

3 fr



Eb7 (Gdim)

3 fr

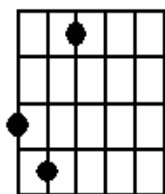
Tritone on 9th and 10th fret

7 fr

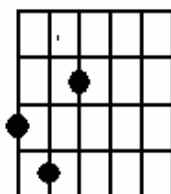
7 fr

8 fr

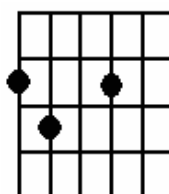
8 fr



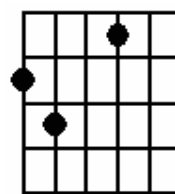
A7



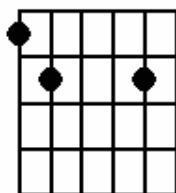
Eb7 (Gdim)



A7 (C#dim)

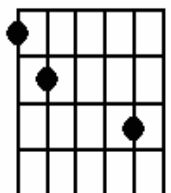


Eb7



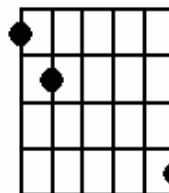
A7

9 fr



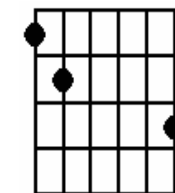
Eb7 (Gdim)

9 fr



A7 (C#dim)

9 fr



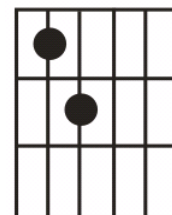
Eb7

9 fr

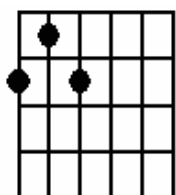
Tritone on 5th and 4th string

Now we move our tritone to the 5th and 4th string. Still using the same chords in our example, we find the first tritone at 5th string 4th fret (C#/Db) and 4th string 5th fret (G). The next tritone is at 5th string 10th fret (G) and 4th string 11th fret (C#/Db).

Notice that it is a tritone (flat fifth) between the two tritone intervals. This equals 6 frets. This also means that you can get a flat five substitution by moving any of these chords up or down six frets.

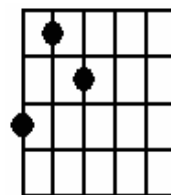


Tritone on 4th and 5th fret



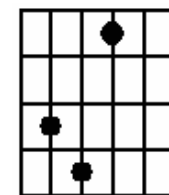
A7

4 fr



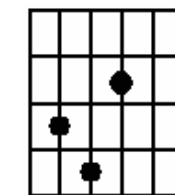
Eb7 (Gdim)

4 fr



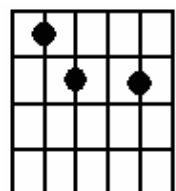
A7

2 fr



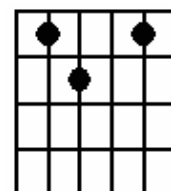
Eb7 (Gdim)

2 fr



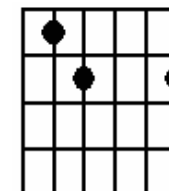
A7 (C#dim)

4 fr



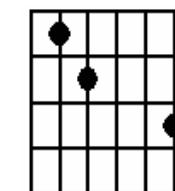
Eb7

4 fr



A7

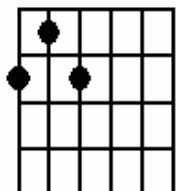
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Eb7 (Gdim)

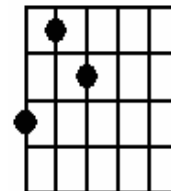
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Tritone on 10th and 11th fret



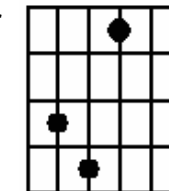
Eb7

10 fr



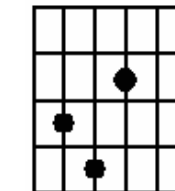
A7 (C#dim)

10 fr



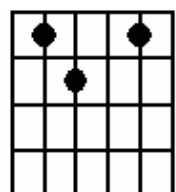
Eb7

8 fr



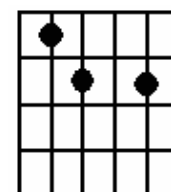
A7 (C#dim)

8 fr



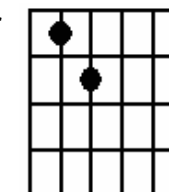
A7

10 fr



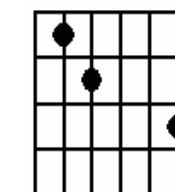
Eb7 (Gdim)

10 fr



Eb7

10 fr



A7 (C#dim)

10 fr

Before we continue, I will remind you to see which notes we are adding to the tritone to get these chords. To get the **A7 without fifth**, we add an **A** (the root). To get an **A7 without root** we add an **E** (the fifth). To get the **Eb7 without fifth** we add an **Eb** (root), and to get the **Eb7 without root** we add a **Bb** (fifth).

For chords with the next tritones, go to part 6.

For more on tritones and the diminished chord, go to:

- | | | |
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| <ul style="list-style-type: none"> • Theory: Tritone interval • Theory: The diminished triad • Theory: The dominant 7th chord • Chords: dim chords | <ul style="list-style-type: none"> • Chords: Dim7 chords • Progressions: Chord - diminished • Progressions: V7-I change | <ul style="list-style-type: none"> • Tritone Blues - Part 1 * Part 2 * Part 3 * Part 4 • Blues Gutiar: 12-bars, Two Chord Shapes and a Touch of Jazz - Part 1 * Part 2 * Part 3 * Part 4 • Blues Guitar: The Flat-five Substitution – Part 1 * Part 2 * Part 3 * Part 4 * Part 5 * Part 6 * Part 7 • The same in Theory: The Flat-five Substitution • Song: The Beatles' song Michelle |
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**The Flat Five Substitution
Part 4**

**The Flat Five Substitution
Part 6**



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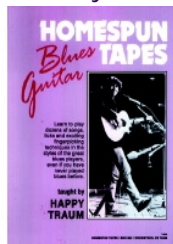
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The Flat Five Substitution - part 6



The Flat Five Substitution
Part 5

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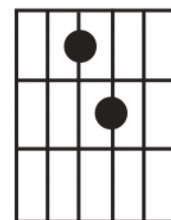
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I remind you that these chords are not full 7th chords. We have removed either the 5th or the root from the chords. The dominant7 chord without the root is really a dim chord that function as a dominant7. In our context, a **C#dim** may function as an **A7**, and **Gdim** may function as **Eb7**.

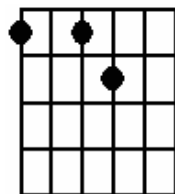
Tritone on 4th and 3rd string

Now we are back to where we started: Chords with the tritones on the 4th and 3rd strings. But as you will see, there are a few more chords than the ones we have covered so far.

Still in A7 / Eb7, we find the tritone in two positions: 5th fret on 4th string and 6th on 3rd, and then at 11th fret at 4th and 12th fret on the 3rd string.

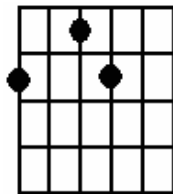


Tritone on 5th and 6th fret



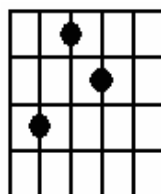
A7

5 fr



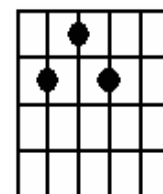
Eb7 (Gdim)

5 fr



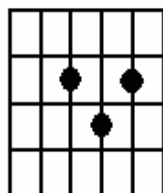
A7 (C#dim)

5 fr



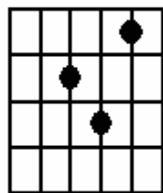
Eb7

5 fr



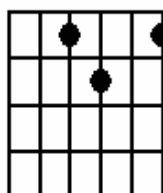
A7 (C#dim)

4 fr



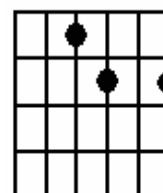
Eb7

4 fr



A7

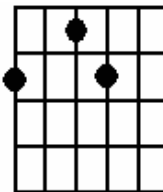
5 fr



Eb7 (Gdim)

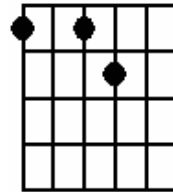
5 fr

Tritone on 11th and 12th fret



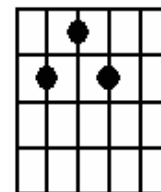
A7 (C#dim)

11 fr



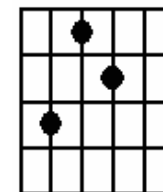
Eb7

11 fr



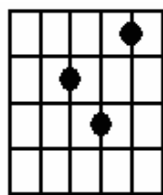
A7

11 fr



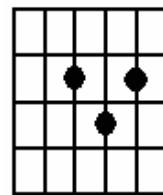
Eb7 (Gdim)

11 fr



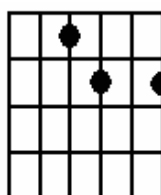
A7

10 fr



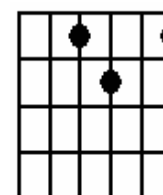
Eb7 (Gdim)

10 fr



A7 (C#dim)

11 fr



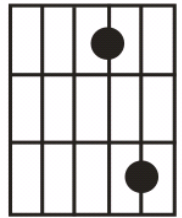
Eb7

11 fr

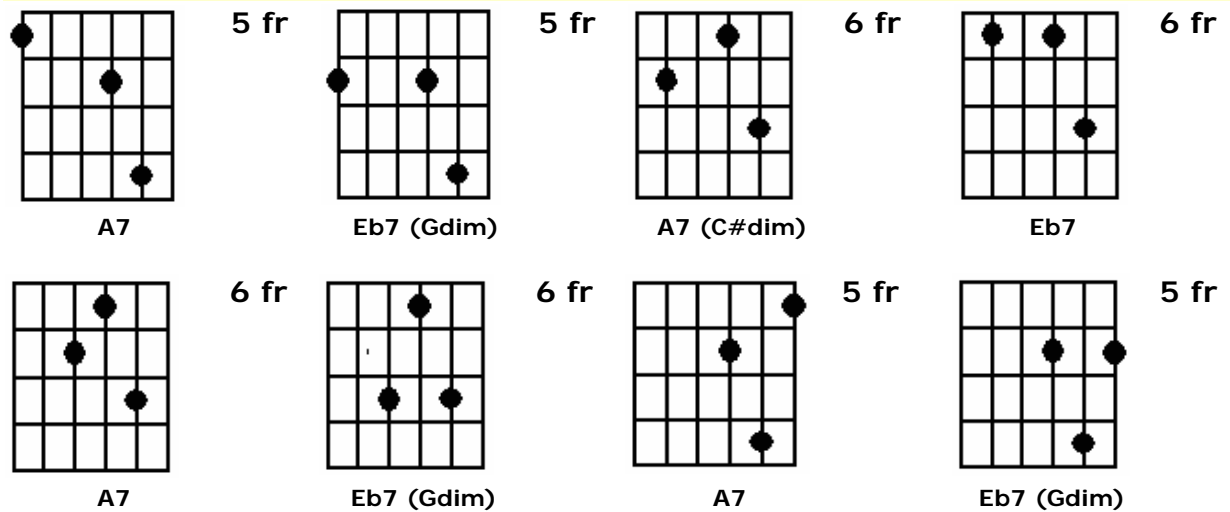
Tritone on 3rd and 2nd string

As the interval between the 3rd and 2nd string is a **major third**, and not a **perfect fourth**, as it is between the other strings, the shape here is different.

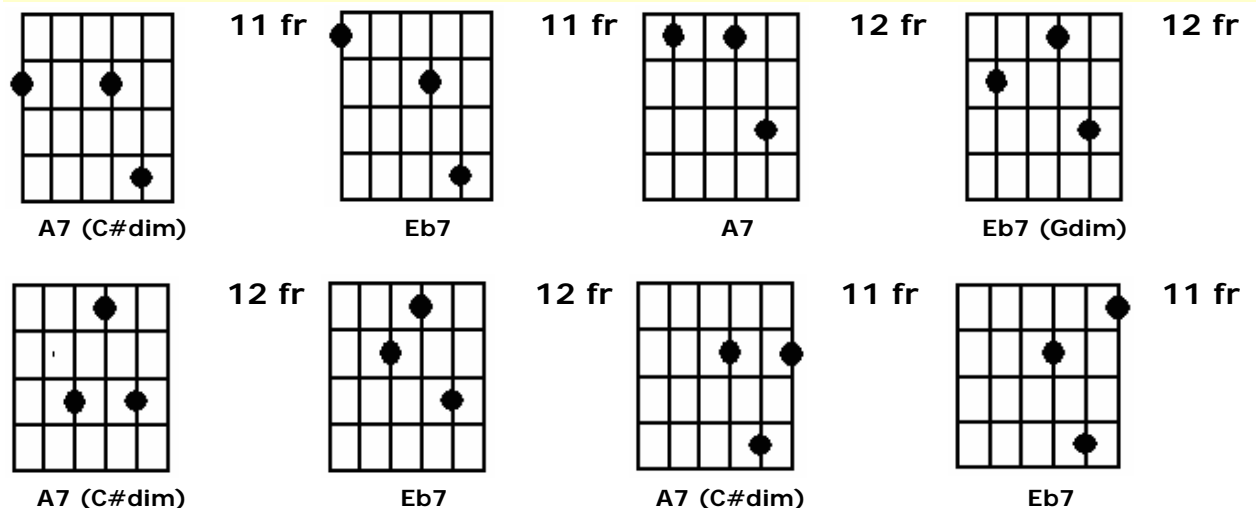
With the chosen chords, the first tritone is on 3rd string 6th fret and 2nd string 8th fret, and the second on 3rd string 12th fret and 2nd string 14th fret. When reaching 12th fret, we can also go down one octave, and we have the tritone on open 3rd string and 2nd string 2nd fret. But as chords with open strings are not moveable, we stick to the 12/14th fret.



Tritone on 5th and 6th fret



Tritone on 12th and 14th fret



For chords with tritones on string 2 and 1, and some other tritone shapes, go to part 7.

For more on tritones and the diminished chord, go to:

- | | | |
|--|--|--|
| <ul style="list-style-type: none"> • Theory: Tritone interval • Theory: The diminished triad • Theory: The dominant 7th chord • Chords: dim chords | <ul style="list-style-type: none"> • Chords: Dim7 chords • Progressions: Chord - diminished • Progressions: V7-I change | <ul style="list-style-type: none"> • Tritone Blues - Part 1 * Part 2 * Part 3 * Part 4 • Blues Guitar: 12-bars, Two Chord Shapes and a Touch of Jazz - Part 1 * Part 2 * Part 3 * Part 4 • Blues Guitar: The Flat-five Substitution – Part 1 * Part 2 * Part 3 * Part 4 * Part 5 * Part 6 * Part 7 • The same in Theory: The Flat-five Substitution • Song: The Beatles' song Michelle |
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The Flat Five Substitution Part 5

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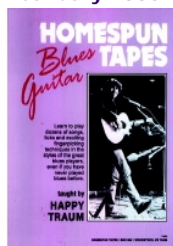
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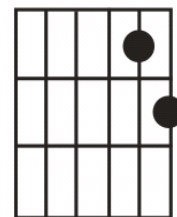
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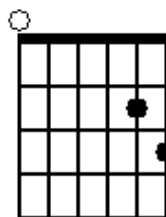
Tritone on 2nd and 1st string

This is the last tritone *on adjacent strings*, and the last we will build chord around in this lesson. But there are more tritones, and we will end the lesson by showing a few of them. But first we have to look at the tritone on 2nd and 1st string. We find the first tritone on 2nd string 2nd fret and 1st string 3rd fret. The next is on 2nd string 8th fret and 1st string 9th fret. If we go one octave up from the first, we end at 2nd string 14th fret and 1st string 15th fret.

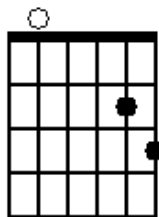


With the chosen chords, the first tritone is on 3rd string 6th fret and 2nd string 8th fret, and the second on 3rd string 12th fret and 2nd string 14th fret. When reaching 12th fret, we can also go down one octave, and we have the tritone on open 3rd string and 2nd string 2nd fret. But as chords with open strings are not moveable, we stick to the 12/14th fret.

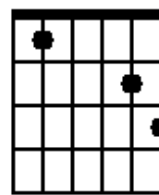
Tritone on 2nd and 3rd fret



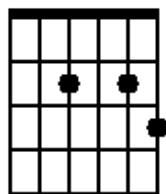
A7 (C#dim)



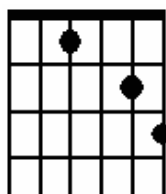
A7



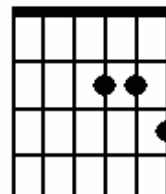
Eb7 (Gdim)



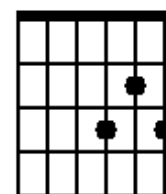
Eb7



Eb7

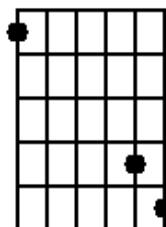


A7



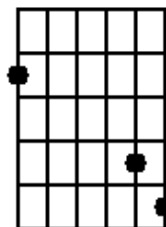
Eb7 (Gdim)

Tritone on 8th and 9th fret



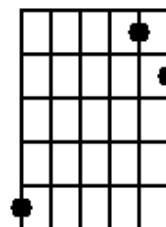
A7

5 fr



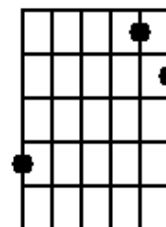
Eb7 (Gdim)

5 fr



A7 (C#dim)

8 fr



Eb7

12 fr

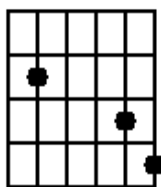
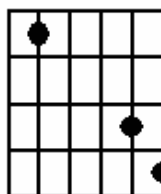
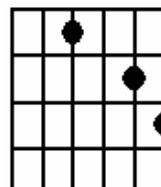
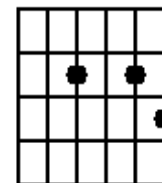
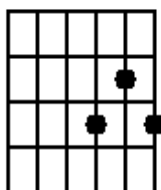
If you try the chords above, you will find that this combination of strings are a bit hard to play for these chords, as you get some hard stretches.

6 fr

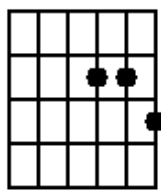
6 fr

7 fr

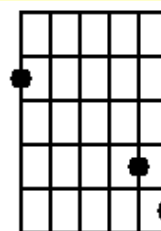
7 fr

**A7 (C#dim)****Eb7****A7****Eb7 (Gdim)****A7 (C#dim)**

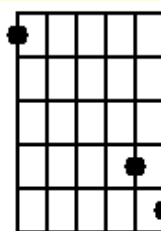
8 fr

**Eb7**

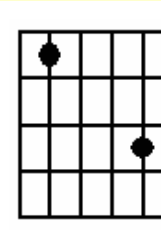
8 fr

Tritone on 14th and 15th fret**A7 (C#dim)**

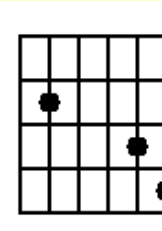
11 fr

**Eb7**

11 fr

**A7 (C#dim)**

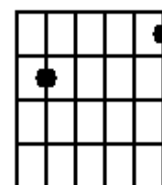
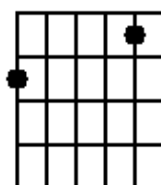
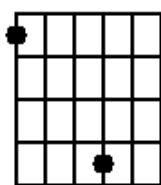
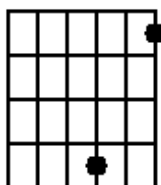
12 fr

**Eb7**

12 fr

There are of course more chords that can be played with tritone on 14th and 15th fret, but these are the four where we partly used open strings on the lower position.

There are a few other tritones you can play on the guitar. The first is a real tritone. The others are tritone +octave.



You should be able to figure out which chords can be substituted by which by now, but I list them just to be sure. Remember that you can substitute both ways: **A7** can be substituted by **Eb7**, and **Eb7** by **A7**. The chords in each column can substitute each other.

C7 / Edim	C# / Db7 / Fdim	D7 / F#dim	Eb7 / Gdim	E7 / G# / Abdim	F7 / Adim
F# / Gb7 / Bbdim	G7 / Bdim	Ab7 / Cdim	A7 / C#dim	Bb7 / Ddim	B7 / D# / Ebdim

Now we will leave tritones for a while. But we will not leave the 12-bar blues and three-note chords yet. We will put in some **m7** chords. But this will not be before next month and next newsletter.

For more on tritones and the diminished chord, go to:

- Theory: Tritone interval
- Theory: The diminished triad
- Theory: The dominant 7th chord
- Chords: dim chords

- Chords: Dim7 chords
- Progressions: Chord - diminished
- Progressions: V7-I change

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The Flat Five Substitution Part 6

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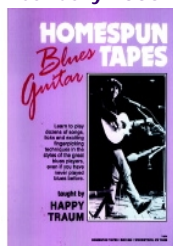
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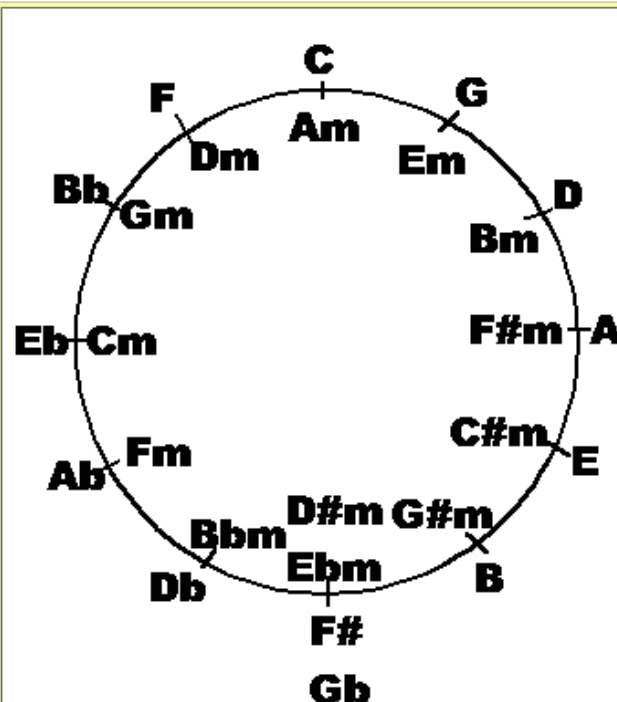
The circle of fifths is a visualization of relations between keys.

At the top, at "12 o'clock", is the key of C, with no sharps or flats. Then there is always a perfect fifth to the neighboring key. If you move with the clock, you go up one fifth. If you go the other way, you go down a fifth.

In the inner circle are all the relative minor keys, with Am at the top.

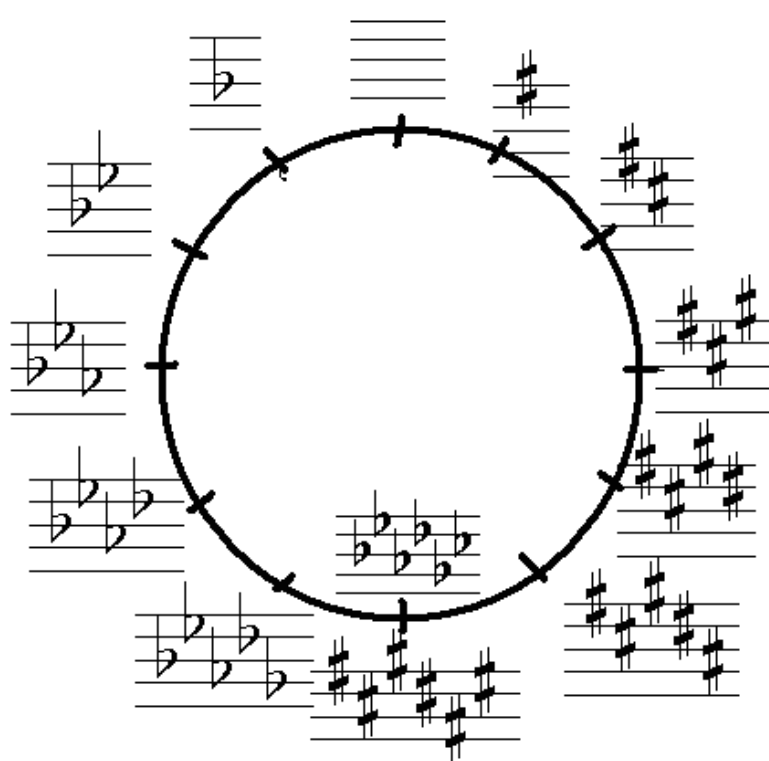
If you look at the C on the top, you find the subdominant F to the left, and the dominant G to the right. In the circle of fifth you will always have the three **primary chords** next to each other: The tonic or root in the centre, the subdominant to the "left" (counterclockwise) and the dominant to the "right" (clockwise).

At the bottom - "6 o'clock" - we have both the key Gb and F#, and the relative minor Ebm and D#m. They are enharmonic. We could have continued the #-keys around the clockwise, with C# at "7 o'clock". And we could have continued the b-keys the other way, to Cb at "5 o'clock". But it is common to stop at F#/Gb. If we continue, it gets too complicated. If you go to the next figure, we would have had 7 #s in C#, and 7 bs in Cb. If we go further, we will have to introduce double #s (x) and double bs (bb).



Another way to look at the circle of fifths is the relations between keys, illustrated with sharps and flats. If we move one step with the clock, we add one sharp (#) or deduct one flat (b). If we go one step against the clock, we deduct one sharp or add one flat. This tells us that there is only one note that is different from one key to the key one fifth away from it. If we go from C-major with no sharps or flats, to G-major with one sharp, the only difference is that the note F is raised to F#. Six notes are the same, one is different. If we go the other way, from C to F, we add one flat. Now the B is flattened to Bb. Still six notes are the same, one is different.

When we modulate to another key, it is easier to modulate to a neighboring key with many notes in common, than to a remote key with only a few notes in common.



The circle of fifths is a very useful tool to illustrate relations between keys and chords. We will refer to it frequently when we discuss this issues. You should learn it and understand it.



The Flat Five Substitution Part 7

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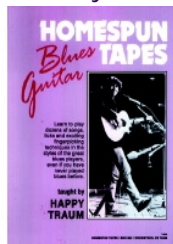
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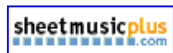
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Natural minor (Aeolian Mode)



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Minor harmony is definitely a major challenge. It is not without reason that we have dealt with major key music so far in this series. Just as a start: There are many minor scales. We will start with the simple form - the **natural minor**. The natural minor has the same notes as a relative major scale - it is just starting and ending somewhere else on the ladder. The relative minor to C-major is A-minor. Natural A-minor has the notes **A-B-C-D-E-F-G-A**, which are exactly the same notes as C-major, only starting and ending on A instead of C.

If we compare side by side, the C-major and natural C-minor compares as this:

XXXX

If we build harmony on the notes 1, 4 and 5 as we did on the major scale, but this time in A-minor, we will get the chords Am, Dm and Em. If your memory is not too slippery, you will notice that these are the secondary chords of C-major. The primary chords of natural minor are the same as the secondary chords of the relative major key. And there is no prize for guessing that the secondary chords of A-minor is C, F and G.

The minor scale has no leading note - a half note under the tonic. It does not give the strong lead to the tonic as the major scale. To compensate for that, one has devised the scale called **harmonic minor**, with a raised leading note. If we stick to A-minor, we get G# instead of G. And the chord will be E-major, and not E-minor. The **E7** will give the same lead to **Am** as **G7** will for C. So with harmonic major, we get the chords **Am**, **Dm** and **E7**, instead of the **Am**, **Dm** and **Em** of natural A-minor. The notes of harmonic A-minor are A-B-C-D-E-F-G#-A.

When making melodies, we might also want the leading note when going up to the tonic. For this purpose we have the melodic minor. The trouble is that if we raise the 7th note of a natural minor, we get an interval of one and a half note from the flat 6th to the major 7th. In A-minor this is from F to G#. We do not want this, so the 6th is raised a half step too, so that the melodic A-minor going up is A-B-C-D-E-F#-G#-A. When going down, we do not need the leading note that leads up to the tonic. Now the 7th note in A-minor is G. Then we do not get the trouble of the large interval from flat 6th to major 7th, meaning that there is no reason to raise the 6th. So the 6th is now F, not F#, which mean that melodic minor going down is the same as natural minor. Confused? At least you are not alone. Just to add to the confusion: We may have harmony based on melodic or natural minor, melodies might follow the descending melodic minor (natural minor) on their way up, and the ascending melodic minor on the way down.

If we try to make **diatonic primary chords** on 1, 4 and 5 in these scales, we will end up with (in A-minor):

Natural minor: **Am-Dm-Em**.

Harmonic minor: **Am-Dm-E(7)**

Melodic minor up: **Am - D - E(7)**

Melodic minor down: As natural minor.

If we add the secondary chords, we get even more trouble:

Natural minor: **C-F-G**

Harmonic minor: **Caug-F-G#° (G#dim)**

The trouble with the G-sharp is that it will have G#-B-D, which gives **G#° (G#dim)**.

Melodic minor up: **Caug - F#° (F#dim)-G#° (G#dim)**

Melodic minor down: As natural minor.

This give us the following chords: **Am-C-Caug-Dm-D-Em-E7-F-F#° (F#dim)-G-G#° (G#dim)**.



The Circle of Fifths

Natural minor (Aeolian Mode)





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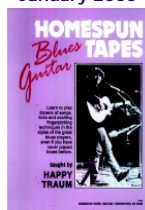
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Natural minor (Aeolian Mode)



Minor harmony

Harmonic minor



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Do not get too confused if you think you have seen this lesson before. It is appearing twice, once as **natural minor** and once as **aeolian mode**

In our first introduction to minor, we will start with the scale known as **natural minor**. In the mode-system, that we have not covered yet, is it called **aeolian mode**. The **A natural minor** has no sharps or flats. It contains exactly the same notes as a C-major scale. The only technical difference is that we start and end on A instead of C, but the sound is different. If you play the white keys on a keyboard from A to A, you get A natural minor.

If you have learned to play the major scale in different positions, it is easy to play the natural minor. You use the same boxes, and just choose another note as tonic or root. If we choose the **Major Box 5**, you should know how to play the C-major scale. Here is the same box. All I have done is to change the numbering, making the tonic of the natural minor (here A) no 1.

The most important features of the A natural minor is that it has a **minor 3rd**, a **perfect 5th** and a **minor 7th**. The minor third makes it a minor scale. The perfect fifth makes it stable scale. The minor 7th means that the scale has **no leading note** that will take us back to the tonic. Then we can also notice that it has a **minor 6th**, compared to the major sixth in the major scale. If we put a C-major and a C-natural minor side by side, they will look like this:

If we make a harmonized A-natural minor scale, we get these chords:

The primary chords are **Am**, **Dm** and **Em**, and the secondary chords are **C**, **F** and **G**. **The primary chords of C-major** are the secondary chords of **A-natural minor**, and the secondary chords of **C-major** becomes the primary chords of **A-natural minor**. Once again we end up with a **B°**, which is neither primary nor secondary.

We have one major scale and a minor scale that in it's natural form have the same notes and the same chords. It is just the sequence that is different. The minor scale is called the **relative minor** scale to the major scale with the same notes and chords, and the major scale is called the **relative major** to the minor scale. It is not always easy to decide if a song is in the major key or it's relative minor, or vice versa. If you start with the three primary chords of the major scale, and then use secondary chord substitutions to a large extent, the music will be more and more minorish, and you might end up in the relative minor key. Or one might wonder if the tune modulate from major to it's relative minor, and maybe back to the major key. If we start from natural minor, and use the secondary major chords a lot, the music might sound majorish, and in the same way we may ask if we still are in the minor key, or if the music has modulated to it's relative major. If you go to the **circle of fifth lesson**, you will find the major keys on the outside, and their relative minor keys on the inside of the circle in the same positions.

If we use the **dominant seventh**, **V7** instead of the **V** chord in a **V7-I change**, **G7** instead of **G** if we are in the key of C, we get a very strong statement of C-major. A dominant 7th will keep you in the key, while a dominant triad is more likely to let you slip away into the relative minor key. We can reinforce the minor key in the same way, but we will come to this in the next lesson on **Harmonic Minor**.

Scales: Aeolian Mode (Natural Minor)

Box 1	Box 2	Box 3	Box 4	Box 5	Box 6	Box 7
Ex 1	Ex 1	Ex 1	Ex 1	Ex 1	Ex 1	Ex 1
Ex 2	Ex 2	Ex 2	Ex 2	Ex 2	Ex 2	Ex 2

Theory: Natural minor



Minor harmony

Harmonic minor



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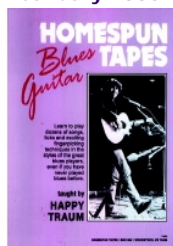
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Harmonic minor



Natural minor (Aeolian Mode)

Melodic minor



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As said in the previous lesson on the **natural minor**, the natural minor scale has no leading note. It means that we do not get the same pull towards the tonic as we do in the major scale. If we play a minor **v-i** change, it is not as strong lead as the parallel major **V-I**. The **v-i** has the 5-1 move even though the voice leading will often be 5-5, which give some resolution. But it lacks the the 7-1 leading note to tonic move. The 7b-1 does not have the same strength.

In major, the cadence could be reinforced by extending the **dominant tirad** to a **dominant 7th**. If we try to do something similar with the minor dominant triad, it does not help very much. A minor 7th does not have the same power as a dominant 7th. As you probably remember, the most important notes of the dominant 7th chord are the 3rd and the 7th, which give the **tritone**. In a **G7**, with the notes **G-B-D-F**, we get the tritone **B-F**. But a minor 7th has a minor third, and the **Gm7** has the notes **G-Bb-D-F**. The interval **Bb-F** is a **perfect fifth**, a stable interval that does not have the unsettled drive of the tritone.

The result is that a natural minor key cannot be established as solid as a major key, through the dominant-tonic cadence. That might be just what we want: A major key gives a solid harmonic framework, but this framework might also lock you in. It is easier to slip away from a key that is less solid, and improvisers take advantage of this. You might find it easier to improvise in a minor key compared to major. But having said that: Sometimes we want a stronger minor key. The answer is the **Harmonic minor**.

You get the harmonic minor by raising the 7b to a 7. In A-minor you change the G to a G#, which gives you the notes A-B-C-D-E-F-G#-A. If we compare the natural minor and the harmonic minor, it will be like this:

XXXX

The raised 7th causes some difficulties when it comes to the fingering of the A harmonic minor.

XXXX

If we harmonize the notes 1, 4 and 5, we get the primary chords i, iv and V. In A-minor this will be **Am**, **Dm** and **E**. It gives us the stronger V-i change, which is of course the purpose of the *harmonic* minor scale. If we extend **E** to **E7**, we get our restless friend, the **tritone** back into our dominant harmony, and the **V7-i** has very much the same effect as the **V7-I**. There are however a few differences you should notice.

If we compare the **voice leading** when going from a **G7 1. inversion to C** and **G7 1. inv. to Cm** there are a few differences that one should notice. The G stays the same in all chords, and does not move in the two examples. But the important tritone B-F does not resolve to the basic third in the minor chord (C-Eb), as it does in the major (C-E).

The F resolves in one way to the Eb. But it is a whole note step, and the F does not function as a leaning note in Cm as it does in C. There is a leading note move from D to Eb, but this does not give a direct tritone resolution.

G7	C	G7	Cm
G	= G	G	= G
F	- E	F	(Eb)
D		D	- Eb
B	- C	B	- C

G7-C

G7-Cm

If we add the rest of the chords in a harmonized harmonic minor, we have to pay the price for what we gained by raising the 7th. We go back to A-minor for these chords. The **B°** is the same as in C-major and A-natural minor. But if we raise the G to G#, then the C-major does not fit. We get a chord with the notes **C-E-G#**, which is a **C augmented (Caug or C+)**. **Dm** and **E** are primary chords, and **F** does not change. We still have the notes **F-A-C** in the harmonic minor. But when there is no G in the scale, then there is no G-chord either. We have to build the last chord on **G#**, and the next notes will be **B** and **D**. And as the interval from G# to B and from B to D are both minor thirds, we get a **diminished chord - G#°**. The relation between **E7** and **G#°** is the same as the relation between **G7** and **B°**, meaning that they can substitute each other.

The raised 7th in the harmonic minor is there to give us the dominant 7th chord, and not to complicate the

rest of the harmony. You will often hear the **C** and not the **Caug** in **A-harmonic minor**. But you *can* use the **Caug**, even though you do not have to. You might even use the **G** to harmonize the D and the B. If we summarize you can use these chords:

Am - B° - C - Caug - Dm - E - F - G#°

Confused? It will get worse in the next lesson, when we introduce the **Melodic minor**.

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Natural minor (Aeolian Mode)

Melodic minor



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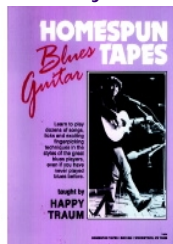
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Melodic minor



Harmonic minor

Modal scales and harmony -
Dorian



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The raised leading note works well melodically too. It leads nicely back to the tonic. So it is often used in the melody when we want this leading effect. But if we raise the 7th, and keep the minor 6th of the natural and harmonic minor, then we get an interval of one and a half note - which sounds like a minor third (in this context it is more correct to call it an augmented second). This is usually not a good scale for the melody. To compensate for this, we raise the 6th as well, from a minor to a major 6th. In Am, this will give us a scale with the notes A-B-C-D-E-F#-G#-A. This raised sixth is sometimes called a **dorian sixth**, because it is a note that characterizes the **dorian scale**, a scale we will come back to later (the dorian scale does not have a raised 7th). If we compare the major and this minor scale, the only difference is that the minor scale has a minor 3rd. It starts to sound a bit "majorish", but the minor third makes it a minor scale.

We need the leading note only when we are leading up to the tonic. When we are playing down from the tonic, there is not the same need to have a note that leads back to where we are coming from. So in a descending scale, we do not play the raised 7th. And when the 7th is not raised, there is no need to raise the 6th either, so we keep the minor 6th. The result is that we get a scale that is different when it is ascending and descending. Ascending melodic minor is as described in the previous paragraph. Descending melodic minor is just as natural minor.

If we add that you might play the notes from the ascending scale even when the melody has a downward direction, and play the notes from the descending scale (natural minor) if the melody has an upward direction, or maybe choose the harmonic minor for the melody or melodic minor for harmony, then you might say that it gets complicated, or you might say that it gives you many choices.

If we harmonize the ascending melodic minor, still in A-minor, the raised 6th will give us some added challenges.

The **Am** is still **Am**. But now we have introduced the F#, meaning that the chord built on the B will have the notes B-D-F#, which is a **Bm**. In the C-chord, we still have the G#, meaning that we have to choose the **Caug**. The D-chord is one of the primary chords. But the raised 6th changes it from **Dm** (D-F-A) to **D** (D-F#-A). The E is still **E** or **E7**. But the raised 6th gives us a new challenge for the next chord. As there is no F in the scale, there is no F to harmonize. So we have to go to F#, and the diatonic notes to harmonize the note are A and C. Once again we get a diminished chord, now it is **F#°**. And finally there is the **G#°** again.

If we summarize the Am in its variations, we have these notes to choose from:

A-B-C-D-E-F-F#-G-G#-A.

The chords to choose from, depending on the scale notes you choose, are:

Am - B° -Bm - C- Caug - Dm - D - Em - E - E7 - F - F#° - G - G#°.

It is time to remind you that you do not produce any interesting music if you are trying to demonstrate how many chords you know and how complicated harmonies you can create. Adding a little bit of extra harmonic color might be as adding a little bit of salt in your food: It enhances the taste. Too much is like drowning a delicious meal in salt.

To get some examples of typical minor chord progressions, you have to cross over to my **Chord Progression Series**.

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[Harmonic minor](#)

[Modal scales and harmony - Dorian](#)



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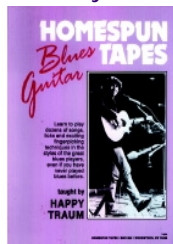
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Modal scales and harmony - Dorian



Melodic minor

Modal scales and harmony:
Phrygian



Books

Dorian Mode is the scale you get when you play one octave up from the second note of a major scale.

Dorian is also the basis of one the best jazz recordings ever: **Miles Davis So What** on his ground breaking **Kind of Blue** album from 1959. [Click here for a list of songs in Dorian mode.](#)

The *dorian mode* or *dorian scale* is a minor scale, as it has a **minor third**. But it is a little different from the **natural minor scale**, which is also known as *aeolian mode*, that was covered in the **Relative Minor lesson**. The difference between natural minor and dorian, is that the natural minor has a *minor sixth*, while the dorian has a *major sixth*. The relations between whole and half steps in the two scales compares like this:

Natural minor							
Dorian							

If we compare *natural d-minor* and *dorian d-minor*, they will be like this:

	D	E	F	G	A	Bb	C	D
Natural minor								
Dorian								
	D	E	F	G	A	B	C	D

If we compare dorian and major, we see that Dorian is a scale starting on the second note of the relevant major. If we compare *C-major* and *Dorian D-minor*, you get the D-dorian by playing the notes of the C-major scale from D to d.

The most important notes in the dorian scale are the root (which gives the identity), the third (which gives minor character), and the major sixth (which makes it dorian minor, and distinguish the scale from aeolian/natural minor).

The basic chord progression I am used to think of as dorian mode - at least in folk songs - is **i-VIIb**. In **Dorian D-minor**, which is a very nice key for dorian, the basic chords are **Dm** and **C**. In **Dorian A-minor**, another good key for dorian, is **Am** and **G**. This is the key of *Working-class Hero*. I choose to say "use to think of as dorian", because I have realized that many of the tunes I think of as dorian has not 6th in them. The note that would have distinguished the modality from aeolian/natural minor is not there. But I will still think of songs with this progression as dorian, unless someone can explain to me why this should be wrong.

One tune that is clearly dorian is **Scarborough Fair**.

The image displays four systems of guitar notation for the Modal Dorian scale. Each system consists of a treble clef staff with a key signature of one flat and a 3/4 time signature. Below each staff are three lines representing the guitar strings (T, A, B) with fret numbers. Chord symbols (Dm, C, G) are placed above or below the systems. A '5' is marked on the first system, 'M6' on the second, '10' on the third, and '14' on the fourth.

System 1: Chords Dm, C, Dm. Fret numbers: 0, 0, 2, 2, 2, 2, 3, 2, 0.

System 2: Chords G, Dm. Fret numbers: 2, 1, 3, 1, 2, 0, 0, 2, 3. A '5' is marked on the first string.

System 3: Chords C, Dm, C. Fret numbers: 3, 3, 1, 2, 2, 0, 3, 2, 3. A '10' is marked on the first string.

System 4: Chords Dm, C, Dm. Fret numbers: 0, 2, 0, 3, 2, 0, 3, 0. A '14' is marked on the first string.

The note that is marked with a **M6** is the note that makes it dorian (B-natural in D). Listen to it and note how it add a little flavour af major, and is a kind of refreshment in the melody. Try the same line in *Aeolian/Natural Minor*, and listen to the difference.

Dm

We can make a **harmonized scale** based on D-dorian, and it will be like this:

As said above, the three most important notes in the dorian mode are the root, the third and the sixth. The root chord, **Dm** in our example, will take care of the root note and the third. To harmonize the **M6** note (B-natural), we have to choose a chord with this note in it. As long as we stick to the diatonic chords, the chords with a B-natural are **Em**, **G** and **Bdim**. The **Bdim** chord calls for a resolution to **C**, and will tend to throw us out of key. So we will avoid this chord. In the context of D-dorian, you should notice that the **Bdim** has the notes **B**, **D** and **F**, or the **M6**, **root** and **third**. It is made from the three most important notes of the mode, but still we cannot use it – or at least we should be very careful with it. In *Scarborough Fair* I have chosen **G** to go with the **M6** note. But you can also try **Em**. In the example where it is rewritten in **Aeolian/Natural minor**, you have to choose another chord. I could be **Gm** or **Bb**. In D-dorian, the **G** chord also goes with the root note, and the third can be harmonized with **F**.

It seems to be different opinions on which chords are the most important in dorian mode. In D-dorian, I would say that the three most important chords are the ones I used in *Scarborough Fair*: **Dm**, **C** and **G**. In generic Roman numbering, this would be **i - IV - bVII**. But I have seen others say that the most important chords are **i - ii - IV**, or **Dm**, **Em** and **G**. I would rank the **ii** chord as No 4, but I accept that there are different opinions on this. Then I would add **bIII** and **v**, or **F** and **Am** as long as we are in D-dorian.

Modal harmonies are more fragile than major, and you should be more careful with the harmonies. I have said that **Bdim** may throw you out of key. The same goes for **G7**, if we stay in D-dorian.

The dorian scale works well with **minor chords**, **minor 7th chords** and **power chords**. **Carlos Santana** and **Tommi Iommi (Black Sabbath)** often use dorian mode in their solos. If you listen to Irish music in minor keys, it will probably be in dorian mode.

Scales: Dorian Mode

Box 1	Box 2	Box 3	Box 4	Box 5	Box 6	Box 7
Ex 1	Ex 1	Ex 1	Ex 1	Ex 1	Ex 1	Ex 1

Ex 2	Ex 2	Ex 2	Ex 2	Ex 2	Ex 2	Ex 2
Theory: Modal, Dorian						
Progressions: Dorian, but not Grey				Dorian - i - (b)III - IV - (i)		



Melodic minor

Modal scales and harmony:
Phrygian



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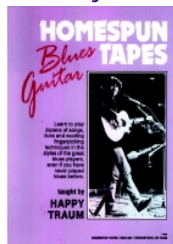
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Modal scales and harmony - Phrygian

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Modal scales and harmony:
Dorian

Modal scales and harmony:
Lydian



The **Phrygian** mode goes from the third note of the major scale. It is a minor scale with a minor third. The characterizing note of the mode is the **flat 2nd**. If a melody or solo shall have a phrygian character, then you have to play the **flat 2nd**.

One way to approach phrygian harmony, is to say that the primary chords are the root (tonic), and those chords that includes the characterizing flat 2nd. That would be the **bII** and the **bVII** chords. If we are in **E-phrygian**, that would be **F** and **Dm**. We have the flat 2nd in the **V** chord as well. But this is a diminished chord, and we better stay away from it.

I think of phrygian mode mainly as a **flamenco scale**, and it is one of the most important scales in this music. But the typical flamenco has a **major root chord**, even though the **phrygian mode is a minor mode**. "Pure" phrygian should have a minor root chord. A typical phrygian flamenco progression is **E - F - G - Am**. If you play this the other way, **Am - G - F - E**, you get what I have labeled a **"Spanish Progression"**. I sometimes find it hard to tell if these chords form some kind of a natural/harmonic A-minor progression, or if they are E-phrygian. If you try **Em** instead of **E** in these progressions, it becomes weaker, and I would say less interesting. At the moment, I do not really know any songs with a pure phrygian progressions – at least there are no songs coming to my mind right now.

Scales: Phrygian Mode

Box 1	Box 2	Box 3	Box 4	Box 5	Box 6	Box 7
Ex 1	Ex 1	Ex 1	Ex 1	Ex 1	Ex 1	Ex 1
Ex 2	Ex 2	Ex 2	Ex 2	Ex 2	Ex 2	Ex 2

Theory: Modal, Phrygian mode.

Progressions: The "Spanish" progression



Modal scales and harmony:
Dorian

Modal scales and harmony:
Lydian



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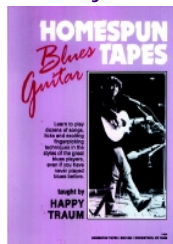
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Modal scales and harmony - Lydian



Modal scales and harmony:
Phrygian

Modal scales and harmony:
Mixolydian



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Lydian is the mode you get if you play a scale from the **4th** note of a major scale. On a keyboard, it would be the scale you get when you play the white keys from F to f.

Lydian is a **major scale**, as it has a major third. The characterizing tone is an **augmented fourth**, which means that the fourth note is rised one half step. If you think of it as a scale for improvising, you can use it over a **maj7** chord, particularly over the **IV** chord.

Again the **primary chords** are the root, and those that contain the characterizing note. These chords are the **I**, **II** and **vii**. If we are in **F-lydian**, that will be **F**, **G** and **Em**. But I also think of **I - II - V** as a lydian progression. In F-lydian that will be **F - G -C**.

[Click her for a list of songs in Lydian mode](#)

Scales: Lydian Mode

Box 1	Box 2	Box 3	Box 4	Box 5	Box 6	Box 7
Ex 1	Ex 1	Ex 1	Ex 1	Ex 1	Ex 1	Ex 1
Ex 2	Ex 2	Ex 2	Ex 2	Ex 2	Ex 2	Ex 2

Theory: Modal, Lydian



Modal scales and harmony:
Phrygian

Modal scales and harmony:
Mixolydian



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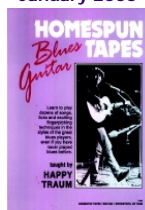
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Happy Traum:
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Aeolian Mode (Natural minor)



Mixolydian Mode

Locrian Mode



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Do not get too confused if you think you have seen this lesson before. It is appearing twice, once as **natural minor** and once as **aeolian mode**

In our first introduction to minor, we will start with the scale known as **natural minor**. In the mode-system, that we have not covered yet, is it called **aeolian mode**. The **A natural minor** has no sharps or flats. It contains exactly the same notes as a C-major scale. The only technical difference is that we start and end on A instead of C, but the sound is different. If you play the white keys on a keyboard from A to A, you get A natural minor.

If you have learned to play the major scale in different positions, it is easy to play the natural minor. You use the same boxes, and just choose another note as tonic or root. If we choose the **Major Box 5**, you should know how to play the C-major scale. Here is the same box. All I have done is to change the numbering, making the tonic of the natural minor (here A) no 1.

The most important features of the A natural minor is that it has a **minor 3rd**, a **perfect 5th** and a **minor 7th**. The minor third makes it a minor scale. The perfect fifth makes it stable scale. The minor 7th means that the scale has **no leading note** that will take us back to the tonic. Then we can also notice that it has a **minor 6th**, compared to the major sixth in the major scale. If we put a C-major and a C-natural minor side by side, they will look like this:

If we make a harmonized A-natural minor scale, we get these chords:

The primary chords are **Am**, **Dm** and **Em**, and the secondary chords are **C**, **F** and **G**. **The primary chords of C-major** are the secondary chords of **A-natural minor**, and the secondary chords of **C-major** becomes the primary chords of **A-natural minor**. Once again we end up with a **B°**, which is neither primary nor secondary.

We have one major scale and a minor scale that in it's natural form have the same notes and the same chords. It is just the sequence that is different. The minor scale is called the **relative minor** scale to the major scale with the same notes and chords, and the major scale is called the **relative major** to the minor scale. It is not always easy to decide if a song is in the major key or it's relative minor, or vice versa. If you start with the three primary chords of the major scale, and then use secondary chord substitutions to a large extent, the music will be more and more minorish, and you might end up in the relative minor key. Or one might wonder if the tune modulate from major to it's relative minor, and maybe back to the major key. If we start from natural minor, and use the secondary major chords a lot, the music might sound majorish, and in the same way we may ask if we still are in the minor key, or if the music has modulated to it's relative major. If you go to the **circle of fifth lesson**, you will find the major keys on the outside, and their relative minor keys on the inside of the circle in the same positions.

If we use the **dominant seventh**, **V7** instead of the **V** chord in a **V7-I change**, **G7** instead of **G** if we are in the key of C, we get a very strong statement of C-major. A dominant 7th will keep you in the key, while a dominant triad is more likely to let you slip away into the relative minor key. We can reinforce the minor key in the same way, but we will come to this in the next lesson on **Harmonic Minor**.

Scales: Aeolian Mode (Natural Minor)

Box 1	Box 2	Box 3	Box 4	Box 5	Box 6	Box 7
Ex 1	Ex 1	Ex 1	Ex 1	Ex 1	Ex 1	Ex 1
Ex 2	Ex 2	Ex 2	Ex 2	Ex 2	Ex 2	Ex 2

Theory: Natural minor



Mixolydian Mode

Locrian Mode



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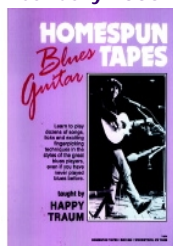
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Modal scales and harmony - Mixolydian



Modal scales and harmony:
Lydian

Modal scales and harmony -
Aeolian



Books

Mixolydian is the scale you get when you play one octave up from the fifth note of the scale. If we make **C-major** our reference, you get mixolydian if you play from G to G.

Mixolydian is a major scale, as it has a major third.

If we compare the mixolydian with the major (ionian) scale, we will see (and hear!) that the mixolydian scale has a minor seventh, while the major has a major seventh. Viewed from the top, the seventh is one half step below the root in major, and one whole step below in mixolydian. Some will say that mixolydian has **low leading note**, others will say that it has **no leading note**. I will not make the verdict if it is low or no. But it does not have the same leading effect as the leading note in a major scale. The tonality is weaker in mixolydian.

The mixolydian scale is often called the **dominant 7th scale**, which indicates that it is used over at dominant 7th chord.

The main chord in mixolydian, next to the root chord, is the **bVII**. This is **the mixolydian chord**. If it is a major key and you have the **bVII** chord, it is very likely that you are in mixolydian mode.

The third chord would be either the **v** or the **IV** chord. In G-mixolydian, that would be **Dm** or **C**. **Dm** has the m7 note (F) in it, which is the characterizing note in mixolydian. But the **IV** is also frequently heard in music played in mixolydian mode, for instance in the sequence **F - C - G**.

Scales: Mixolydian Mode

Box 1	Box 2	Box 3	Box 4	Box 5	Box 6	Box 7
Ex 1	Ex 1	Ex 1	Ex 1	Ex 1	Ex 1	Ex 1
Ex 2	Ex 2	Ex 2	Ex 2	Ex 2	Ex 2	Ex 2

Theory: Modal, Mixolydian



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Lydian

Modal scales and harmony -
Aeolian



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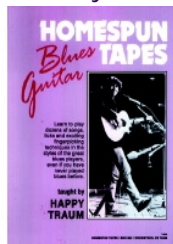
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Modal scales and harmony - Locrian



Modal scales and harmony:
Aeolain

Modulation - introduction



Books

Locrian mode is what you get if you play from 7th to 7th note of a major scale. Play from B to b on the white keys on a keyboard, and you have locrian mode.

I have said several times that in chords, **the root gives identity, the third gives character** and **the fifth gives stability**. The **Locrian mode** has no perfect fifth, but a **tritone (diminished fifth)**. This makes locrian mode very unstable, and it is a mode that is not much used. You may use this mode if you improvise over a **m7b5** chord, a chord that you will not use too much

To try to make a harmonic structure based on the locrian mode does not make very much sense. It is unlikely that you will ever use it or hear it.

Scales: Locrian Mode

Box 1	Box 2	Box 3	Box 4	Box 5	Box 6	Box 7
Ex 1	Ex 1	Ex 1	Ex 1	Ex 1	Ex 1	Ex 1
Ex 2	Ex 2	Ex 2	Ex 2	Ex 2	Ex 2	Ex 2

Theory: Modal, Locrian



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Modulation - introduction



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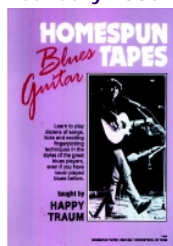
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Modulation - introduction



Modal scales and harmony - Locrian

Modulation: Tonic (root) to
subdominant



Books

Modulation mean changing to another key. In classical music, it is common to take the music through numerous keys, before returning to the home key. You go out on a journey, and then come home. Listeners expect to come home, sooner or later. In a symphony that might take more than an hour to play, you can stay in other keys for a while, before returning. In a 3 minute pop-song with the verse played 4 times, you don't have to be away from home for a long time. There you might go to another key for just one bar, before returning. Or you might modulate to another key in the bridge part, and return to the home key in the verse.

Often the word **transition** is used in addition to **modulation**. When you just jump to another key, as you can often hear in some pop and country music where they repeat the melody a half note higher, it is transition. Modulation is a bit more sophisticated, where you work your way to the next key through some harmonic development. In these lessons, I will not distinguish between the two. I call every change of key a modulation.

In pop, rock and jazz, it is not common to use the word modulation too often. One often refer to chord changes or chord progressions, without discussing, or maybe not realizing that the music move from one key to another.

We can modulate to close keys or to more remote keys. The closest keys are the neighboring keys in the **circle of fifth**, the relative major or minor and from major to minor or vice versa with the same root. In this series we will only cover modulation to close keys.

To explain some basic aspects of modulation, we once again have to go back to the **tritone** and the **V7-I** cadence. You will find all diatonic intervals but one in at least two major scales. But the tritone **F-B** or the inverted version **B-F** is unique to C-major. You will not find it in any other major key. Go one step clockwise around the circle of fifths, and the F is sharpened to F#. Go one step counterclockwise, and the B is flattened to Bb. There is also only one tritone in a major scale, if we hold the inverted **B-F** as the same as **F-B**.

You do find the **enharmonic equivalents** of the tritone **F-B**, **E#-B** in **F# major** and **Fb-Cb** in **Gb-major**. But these are very remote keys if our home is C-major - as far as you can get on an equal tempered instrument like the guitar. We will come back to this.

The tonal centre of a major key is the tonic triad - the C-major triad in C-major. But this triad is not unique to C-major. C-major is also the dominant V-chord of F-major and the subdominant IV-chord or G-major. So the C-major triad is not enough to define the key of C-major. We need the unique tritone F-B *and* the C-major triad. To establish the new key, we have to obliterate the tritone of the key we are leaving, and establish the tritone of the new key, and to stabilize the key with the new tonic triad. If we modulate to a close key, the dominant, the subdominant or to their relative minors, the tonic triad is still a diatonic triad in the new key, but it will have another function in the new harmonic context.

A few words about notation

When analyzing the modulations, the notation become a bit complicated. If the home key, or the main key, is **C-major**, the chords **C-G-C** may be referred to as **I-V-I**. But when we modulate to **G-major**, the same chords become **IV-I-IV** in the new key. It is necessary to understand the functions of the chords related to the different keys to understand the modulation. But whenever we are writing the chords in a progression meant to be played and not to be analyzed, the chords will be written in relation to the home key only. If the home key is C-major, the chord D7 will then be referred to as a I17 chord, even though we may be in the key of G-major at the moment, where the chord function as a V7 chord in the temporary key.



Modal scales and harmony - Locrian

Modulation: Tonic (root) to
subdominant



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Modulation: Tonic (root) to subdominant



Modulation - introduction

Modulation to dominant



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The easiest way to modulate is counterclockwise around the circle of fifth. These modulations are sometimes called to "flow with the tide" around the circle: You go down in fifths. You take advantage of the fact that the root key, the key you are leaving, is the dominant key of the new key. The I chord of the old key is the **V-chord** of the new key. A change from the I-chord of the old key to the I-chord of the new key is a I-IV in the key you are leaving, but it is a V-I change in the new key you are arriving at. This is what I in another lesson has called "**The double meaning of the I-IV change**".

To firmly establish a key, you have to play a **V7-I** or **V7-i** change. If we are in the key of C-major, you establish the key through a **G7-C** change. If you will modulate to the subdominant key, **F**, you have to establish the new key through a **V7-I** change **within the new key**. The dominant 7th in F-major is **C7**. So the way to go is to play for instance **C-C7-F**. The easy way to go the the subdominant key is to make the tonic into the dominant 7th of the new key, by simply extending the chord from a basic triad to a 7th chord.

Play these chords, and listen to the effect: **C - F - C - G7 || C - C7 - F - C**. Even though you end on C, you don't feel quite a home. It is almost as if you are standing outside your home. The chords **C-F-C-G7-C** establish a solid C-major. But when you continue with **C7** and **F**, something happens. Listen to how the **C7** creates some tension, and how it is resolved when you change to the **F** chord. What happens it that you modulate from **C** to **F**. So when you end on the **C** chord, you are playing the root or the tonic chord. But you are not in the home key. The **C** chord function more as the V-chord of F-major than as a I-chord of C-major. Add a **G7** and a **C**, and you are back home.

When changing from **C** to **C7**, the we add the Bb. By doing this, we destroy the tritone F-B by changing it to at the perfect fourth F-Bb. At the same time we establish the new tritone **E-Bb**, a tritone that is unique to F-major.

In this brief modulation to F, we did not introduce any new chords, except from the **C7**. It is rather typical for bridge parts that you have this kind of modulation to the subdominant key without introducing new chords, and often you will not realize the modulation. You are just changing chords. As long as we are using chords that are common to the two keys, there is some harmonic ambiguity, and the new key is not established in a very solid way. In our example, we could have used **Dm** and **Am** in our F-part, and still retain some of this ambiguity. The **Dm** could be a stepping stone on your way home. Add a third line to our example with the chords **F - Dm - G7 - C**. Now the **C**-chord is at home. When looking backwards to the **F**, the Dm is a vi-chord in F-major. But when you look forward to **G7**, it is the ii-chord of C-major. This little sequence takes you back to your home key through a **ii-V7-I** change.

We could reinforce the new key by repeating the **C7** and/or by playing some chords of the new key that we do not use in the home key. Before returning through the **F-Dm-G7-C** sequence, play a few more bars of **F**, **C7** and the two chords **Bb** and **Gm**. Both these chords have the note **Bb**, that belongs to F-major, but not to C-major. Then there is no doubt any longer: You are away from home, in F-major. If you try to include a **G7** and an **Em**, then you will return home. You look out the door, think that it is dangerous or too cold out there, and go back in.

It takes some time to make a solid modulation and establish the new key firmly. And if you do that, it will take some time to reestablish the home key. In an 8-bar bridge, or a 2-bar passage, you will often not have enough time to establish the new key in a solid way, and then reestablish your home key. So you will often return to the home key while you and you're audience still may wonder what happened.

Have you ever felt that you are really taking of when improvising over a 12-bar blues, and then run into trouble because you cannot find the way home? The blues does not fit very well into these more classical based concept - the harmonic and melodic ambiguity of the blues is one aspect that make it interesting. But having said that: At the end of the first line, you will typically end on a **I7** chord, before continuing with the **IV7**. This could be seen as a modulation from tonic to subdominant, although the use of the 7th chord in bar 5 and 6 prevent a firm establishment of the subdominant key. When you return to the **I** chord in bar 7, you are not really back home. The chord could still be the V-chord of the IV-key. It is the V7 chord in the last line that really reestablish and reassures the root. What might happen - and what has happened to me - it that

you change key in your improvising without realizing it. And when the harmony settles the harmonic matters and reinforces the root, you are not prepared to follow. If you play in the key of E, you might modulate to A in the second line. But the A-scale does not work well over the **B7** chord in the last line, so then you are in trouble. In his first public appearance, jazz saxophonist **Charlie Parker** took his solo through several keys without really knowing what he was doing, and crashed because he could not find his way home. The other musicians laughed at this under aged boy who tried to improvise in the club he had sneaked himself into many times to listen to the music. But he went home and practised, and showed the world how to create a great solo ...

You can move with the tide (counterclockwise) around the full circle of fifth by this series of chords: **C - C7 - F - F7 - Bb - Bb7 - Eb - Eb7 - Ab - Ab7 - Db(C#) - Db7(C#7) - Gb(F#) - Gb7(F#7) - B(Cb) - B7 (Cb7) - E - E7 - A - A7 - D - D7 - G - G7 - C**. With this sequence of chords, you have played your way through all 12 major keys and returned back home to C-major. You have not taken the time to really establish any of the keys, as you are leaving them and moving on as soon as possible. But you could reinforce one of some of the new keys by repeating the V7 of the new key, play the IV and/or play the ii chord. You could extend the sequence in this way:

**C-F-Dm-G7 | C - F - C - C7 |
F - Bb - Gm - C7 | F - Bb - F - F7 |
Bb - Eb - Cm - F7 | Bb - Eb - Bb - Bb7 |
Eb - Ab - Fm - Bb7 | Eb - Ab - Eb - Eb7 |
etc, until you come to
G - C - Am - D7 | G - C - G - G7 |
which takes you back to C-major.**

A sequence like this, with two bars in each key with the same chord progression will soon become very predictable and boring. So this is not the way you should use this tonic to subdominant modulation. But it show you a way to move from a key to it's subdominant. And it is a good practise because it will take you through a basic chord progression in all 12 major keys.

A **VIIb chord**, for instance a **Bb** if we are in the key of C, might indicate that you have actually modulated to F. But that will not always be the case. Many popular and rock-songs are based in **mixolydian mode**, and the **VIIb** chord is one of the main chords in mixolydian mode.



Modulation - introduction

Modulation to dominant



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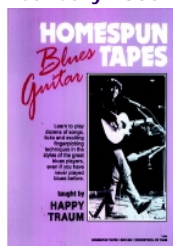
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Modulation to dominant



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When you modulate to the dominant, you go "against the tide". But we have touched this already: When you return from subdominant to tonic, you modulate to the dominant of the subdominant key. To use the **vi** chord, which become the the **ii** chord of the dominant key, and then continue with **II7-V** of the home key, which is the **V7-I** of the dominant key, is one way to go. But it will not always sound as fluent as in our previous lesson where we return from subdominant to home key. When we play **Dm-G7-C** on our way from F-major back to C-major, the **G7** is alien to F-major, but give a "coming home" feeling because we are trying to find a way home to C-major and are expecting the return to the home key.

To go from C-major as tonic or home key, to the subdominant key of G-major, we have to obliterate the tritone of C-major, the F-B. As B is a note in G-major while F is not, we keep the B and change the F by raising it to F#. By doing this, we get one of the notes of the native tritone of G-major, the **F#-C**. The **V7** chord of the new key is the **II7** of the home key, also known as the **V of V chord**. If the home key is C-major and the dominant key G-major, the chord is **D7**.

You can make a rather direct move to the **D7**, although the route is different from when we modulated to the subdominant. We can start with these chords

C - F - C - G7 |
C - D7 - G - G |

The first line of all these examples is not part of the modulation as such. But they are included to firmly establish the tonic key before we start the modulation. The C-major chord is a primary chord both in the home key (C-major) and in the new (dominant) key (G-major). The second line starts with a C. If we are looking backwards, it is a **I chord in the old key**. But if we are looking forward, it is the **IV chord in the new key**. The chord is at home in both keys. If we had stopped here, we would have stayed in C-major. But the following D7 change the harmonic picture, and you hear that we can rest in our new temporary home of G-major. Here the C-chord function as a **pivot chord** in the modulation.

Another common chord that can be a pivot chord, is the G-chord. Although we often use the G7 when we are in C-major, the basic G-major triad works well and is one of the primary chords. We can change our example like this, and still end up in G-major:

C - F - C - G7 |
C - G - D7 - D7 | G ...

We can also do as we did in the previous lesson when we were returning from the subdominant to the tonic key. You can for instance play

C - F - C - G7 |
C - Am - D7 - G |

Now we get a nice **ii-V7-I** change in the new key of G-major.

When modulating to the dominant, the old key becomes the subdominant of the new key. So when returning, you can do as we did in the previous lesson, and you can return to this lesson if you have problems returning to the home key.

A **II7** chord, or "**V of V**" chord will often indicate a modulation to the dominant key. But again, it is not always the case. It can be a **minor to major substitution** where the diatonic minor **ii** chord is changed to the major **II**, or it might be a chord in **lydian** mode. But lydian mode is not one of the most frequently used modes in popular music, so it is not very likely.



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